Software License and Services Agreement

This Software License and Maintenance Agreement (the "Agreement"), effective the ___ day of _____ 2016 (the "Effective Date"), is made by and between Aspera Technologies Inc., a Delaware corporation located at119 Braintree St, Suite 602, Boston, MA 02134 ("Aspera") , and Health Care Service Corporation, a _____ corporation located at _____ (" Licensee").

1.   DEFINITIONS

1.1   *Documentation* means the technical specifications contained in the user and system documentation that Aspera generally makes available to its licensees for use with the Software, which, at a minimum, contain the functionality set forth in Exhibit B.

1.2   *Maintenance and Support Services* mean those services provided by Aspera pursuant to Section 3.1 hereof, which includes the provision of Updates/Upgrades.

1.3   *Maintenance Period* means a twelve (12) month period for which Licensee has purchased Maintenance and Support Services for the Software, the first of which shall commence on the Effective Date.

1.4   *Order Schedule* means each Aspera ordering document signed by the duly authorized representatives of both parties, which identifies the Software or Services ordered by Licensee from Aspera and which incorporates the terms and conditions of this Agreement by reference.

1.5   *Services* mean Maintenance and Support Services.

1.6   *Software* means each software program (solely in object code form) of Aspera and its suppliers (where applicable) licensed by Licensee pursuant to an Order Schedule and governed by this Agreement, including any Updates/Upgrades or copies provided hereunder, and the related Documentation.

1.7   *Subsidiary* means an entity in which Licensee owns more than fifty percent (50%) of such entity's voting securities.

1.8   *Updates/Upgrades* means any subsequent release of the Software, which Aspera generally provides to its customers who are enrolled in, and fully paid-up under, Maintenance and Support Services. Updates/Upgrades do not include any Software that is marketed and priced separately by Aspera.

2.   SOFTWARE LICENSE

2.1   *License*. Subject to the terms and conditions of this Agreement, Aspera hereby grants to Licensee, for its own internal business operations, a non-exclusive, non-transferable, license to install, execute and use the Software set forth in the applicable Order Schedule, on one production instance, for the number of devices, desktops, nodes or servers described in Exhibit A and for the term set forth such Exhibit, in accordance with its related Documentation. Other restrictions on the scope and type of use of the Software may be set forth in the applicable Order Schedule.

2.2   *System Requirements*. The current system requirements for the Software are set forth in Exhibit C, which Aspera may update from time to time as part of Maintenance and Support.

2.3   *Order, Delivery and Copies*. An order for Software licenses shall be delivered either by means of (a) an electronic mail from Aspera that will provide Licensee with a link to access Aspera's web site and instructions for downloading the Software or (b) to the extent that Licensee is unable to download the Software, a CD or other electronic media with the Software. Notwithstanding anything to the contrary herein, Licensee may make a reasonable number of copies of the Software for the sole purpose of backing-up and archiving the Software. Each copy of the Software is subject to all of the terms and conditions of this Agreement and Licensee must retain all titles, trademarks, and copyrights as delivered in the original.

2.4   *Restrictions*. Licensee's use of the Software is limited to the equipment and operating system configurations specified in Exhibit C and the Documentation. Aspera and its suppliers reserve any and all rights, implied or otherwise, which are not expressly granted to Licensee hereunder, and retain all rights, title and interest in and to the Software. Licensee shall not modify, adapt, resell, rent, lease, loan, create or prepare derivative works based upon the Software or any part thereof. Licensee may not use the Software as a service bureau, as an application service provider, to perform consulting or training services for a third party or in any commercial time share arrangement. Licensee may not use the Software in contravention to any applicable laws or government regulations. Licensee shall not decompile, disassemble or otherwise reverse engineer the Software. If the immediately foregoing provision is prohibited by applicable law, Licensee shall provide Aspera with a detailed prior written notice of any such intention to reverse engineer the Software and shall provide Aspera with a right of

first refusal to perform such work. Licensee shall take all reasonable precautions to prevent unauthorized or improper use or disclosure of the Software.

2.5   *Subsidiaries.* Licensee may make the Software available to any Subsidiary if such use of the Software by Subsidiary is licensed in an Order Schedule subject to this Agreement, provided that all licensing restrictions are complied with in the aggregate by Licensee and Subsidiary, and that Licensee and Subsidiary are jointly and severally obligated and liable hereunder.

2.6   *Escrow*. Licensee may enroll as a beneficiary under Aspera's current escrow agreement, at Licensee's cost and expense (the "Escrow Agreement"). Pursuant to the Escrow Agreement, Aspera shall deposit a copy of its proprietary source code with the escrow agent, who may release a copy of the source code in accordance with the terms of the Escrow Agreement. Licensee shall have the right to use the source code in accordance with the terms of the Escrow Agreement, solely for its internal support and use of the Software for the duration of its license.

3.   SERVICES

3.1.   *Maintenance and Support Services*. During a Maintenance Period, Aspera will provide Licensee with Updates/Upgrades and the level of Maintenance and Support Services set forth in the applicable Order Schedule in accordance with Aspera's then–current Maintenance and Support program, the current version of which is attached hereto as Exhibit D. Maintenance and Support Services are provided only for the latest revision of the current and the one prior major release of the Software, and do not apply to any deliverables that may be provided by Aspera to Licensee as part of other professional services. If Aspera provides support for earlier versions of the Software, such support will be treated, billed, and paid for, as other professional services in accordance with Aspera's then current rates for such professional services. Aspera makes no representation or warranty that all bugs will be fixed or all Software will be updated.

4.   FEES AND PAYMENT TERMS

Licensee shall pay Aspera the fees, charges and other amounts specified in an Order Schedule within thirty (30) days of the date of invoice. Aspera is expressly authorized by Licensee to invoice: (a) for such Software upon delivery and (b) in advance for the provision of Services unless otherwise set forth in the applicable Order Schedule. In addition to paying the applicable fees, Licensee shall also pay all reasonable travel and out-of-pocket expenses incurred by Aspera in connection with any professional services rendered. Licensee shall provide a purchase order or notice that a purchase order is not required for purchase or payment prior to the shipment of any Software or the provision of any Services. Overdue balances are subject to a service charge equal to the lesser of 1.5% per month or the maximum legal interest rate allowed by law. Licensee shall be responsible for taxes levied on any transaction under this Agreement, including all federal, state, and local taxes, levies and assessments, excluding any tax based on Aspera's income.

5.   CONFIDENTIALITY

5.1.   *Confidential Information*. Each party will regard any information provided to it by the other party and designated in writing as proprietary or confidential to be confidential ("Confidential Information"). Confidential Information shall also include information which, to a reasonable person familiar with the disclosing party's business and the industry in which it operates, is of a confidential or proprietary nature. A party will not disclose the other party's Confidential Information to any third party without the prior written consent of the other party, nor make use of any of the other party's Confidential Information except in its performance under this Agreement. Each party accepts responsibility for the actions of its agents or employees and shall protect the other party's Confidential Information in the same manner as it protects its own valuable confidential information, but in no event shall less than reasonable care be used. The parties expressly agree that the Software and the terms and pricing of this Agreement are the Confidential Information of Aspera. Licensee will not remove or destroy any proprietary markings or restrictive legends placed upon or contained in the Software.   A receiving party shall promptly notify the disclosing party upon becoming aware of a breach or threatened breach hereunder, and shall cooperate with any reasonable request of the disclosing party in enforcing its rights.

5.2.   *Exclusions*. Information will not be deemed Confidential Information hereunder if such information: (a) is known prior to receipt from the disclosing party, without any obligation of confidentiality; (b) becomes known to the receiving party directly or indirectly from a source other than one having an obligation of confidentiality to the disclosing party; (c) becomes publicly known or otherwise publicly available, except through a breach of this Agreement; or (d) is independently developed by the receiving party. The receiving party may disclose Confidential Information pursuant to the requirements of applicable law, legal process or government regulation, provided that it gives the disclosing party reasonable prior written notice to permit the disclosing party to contest such disclosure, and such disclosure is otherwise limited to the required disclosure.

6.   LIMITED WARRANTY

6.1.   *Warranty*. Aspera warrants that: (a) it has the right to grant the license to use the Software as set out in this Agreement; and (b) for a period of ninety (90) days following the initial delivery of the Software to Licensee, the Software will perform in substantial conformity with Exhibit A.

6.2.   *Third Party Products*. Licensee acknowledges that the Software may contain or be accompanied by certain third party hardware and software products ("Third-Party Products"). These Third Party Products, if any, are identified in, and subject to, special license notices, terms and/or conditions as set forth in the Order Schedule, the Third Party Product packaging and/or in the "notices.txt" file accompanying the Software ("Third-Party Notices"). The Third-Party Notices may include important licensing and warranty information and disclaimers. In the event of conflict between the Third-Party Notices and the other portions of this Agreement, the Third-Party Notices will take precedence (but solely with respect to the Third-Party Products to which the Third-Party Notices relate).

6.3.   *No Other Warranty*. THE ABOVE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, NONINFRINGEMENT, TITLE, QUALITY, OR FITNESS FOR A PARTICULAR PURPOSE.

6.4.   *Remedy*. If the above warranties are breached, Aspera will, at its option and at no cost to Licensee, (a) provide remedial services necessary to enable the Software to conform to the warranty, or (b) replace any defective Software, or (c) refund amounts paid in respect of the defective Software. Aspera's warranty obligations will only extend to material errors that can be demonstrated to exist in an unmodified version of the Software except where the modifications were carried out by Aspera or with its written approval. Licensee will notify Aspera promptly in writing of any breach of warranty. Licensee will provide Aspera with a reasonable opportunity to remedy any breach and reasonable assistance in remedying any defects. The remedies set out in this subsection are Licensee's sole remedies for breach of the above warranties.

7.   LIMITATION OF LIABILITY.

7.1.   *Consequential Damage Waiver*. EXCEPT AS MAY ARISE OUT OF EITHER PARTY'S BREACH OF SECTION 5, NEITHER PARTY (NOR ASPERA'S SUPPLIERS) WILL BE LIABLE TO THE OTHER OR ANY THIRD PARTY FOR LOSS OF PROFITS, OR SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL OR EXEMPLARY DAMAGES, INCLUDING COSTS, IN CONNECTION WITH THE SUPPLY, USE OR PERFORMANCE OF THE SOFTWARE OR SERVICES, OR THE PERFORMANCE OF ITS OTHER OBLIGATIONS UNDER THIS AGREEMENT, EVEN IF IT IS AWARE OF THE POSSIBILITY OF THE OCCURRENCE OF SUCH DAMAGES.

7.2.   *Limitation of Liability* IN ANY EVENT, THE TOTAL LIABILITY OF ASPERA (INCLUDING ANY OF ITS SUPPLIERS) TO LICENSEE FOR ANY CLAIM UNDER THIS AGREEMENT AND ANY ORDER SCHEDULE, WHETHER IT ARISES BY STATUTE, CONTRACT OR OTHERWISE, WILL NOT EXCEED THE AMOUNTS PAID BY LICENSEE TO ASPERA UNDER ANY ORDER SCHEDULE FOR THE SOFTWARE OR SERVICES IN THE TWELVE (6) MONTHS IMMEDIATELY PRECEDING THE EVENT FIRST GIVING RISE TO THE CLAIM. THE FOREGOING LIMIT DOES NOT APPLY TO ASPERA'S OBLIGATIONS UNDER SECTIONS 5 AND 8. THE PROVISIONS OF THIS AGREEMENT ALLOCATE RISKS BETWEEN THE PARTIES. THE PRICING SET FORTH IN THE ORDER SCHEDULES REFLECTS THIS ALLOCATION OF RISK AND THE LIMITATION OF LIABILITY SPECIFIED HEREIN.

8.   INTELLECTUAL PROPERTY INDEMNIFICATION

8.1.   *Indemnity*. Aspera shall defend Licensee (at Aspera's expense) against any claim or suit brought by a third party against Licensee alleging that the Software, or any part thereof, infringes upon a U.S. or European Union patent, or any copyright or misappropriates a trade secret of a third party. Aspera shall pay any damages finally awarded to such third party by a court of competent jurisdiction resulting from such claim or suit, or agreed to in a written settlement by Aspera. Aspera's obligations under this Section shall arise only if: (a) Licensee promptly notifies Aspera in writing of any such claim or suit in writing within seven (7) days of learning of any action, or any threatened action; (b) Aspera has sole control of the defense and settlement of such claim or suit; and (c) Licensee fully cooperates with Aspera. If the Software, or any part thereof, is held to infringe a copyright or misappropriate a trade secret, or in Aspera's sole discretion, is likely to infringe a copyright, Aspera (at Aspera's sole option) shall (i) procure for Licensee the right to continue using the Software; (ii) replace or modify the Software with products of equivalent functionality; or (iii) in the event of a perpetual license, refund to Licensee an amount equal to the Licensee fee paid by Licensee for the affected Software as depreciated on a straight-line basis over a period of three (3) years following delivery of the Software in accordance with the terms of this Agreement, or, in the event of a subscription license, refund to Licensee the fees paid for the Software for the remainder of the subscription term. Aspera shall have no responsibility under this Section if the suit or claim arises from: (v) modification of the Software not carried out by Aspera; (w) Licensee's failure to install an Update/Upgrade that would have avoided the alleged infringement; (x) failure to use the Software in accordance with the Documentation; (y) Aspera's compliance with Licensee's designs or specifications; or (z) combination of the Software with products not provided by Aspera.

CONFIDENTIAL

8.2.   *Sole Obligation*. This Section 8 states Aspera's sole obligation and Licensee's sole remedy concerning any claim that the Software infringes or misappropriates any intellectual or proprietary rights of any third party.

9.   USAGE VERIFICATION

At Aspera's written request, and no more than every six (6) months, Licensee shall provide Aspera with a signed certification (a) verifying that the Software is being used pursuant to the provisions of this Agreement and (b) listing all copies and the respective locations of the Software. In addition to the foregoing, at Aspera's written request, and no more than annually, Licensee will permit Aspera to review and verify Licensee's deployment and use of the Software for compliance with the terms and conditions of this Agreement and the applicable Order Schedule, at Aspera's expense. Any such review shall be scheduled at least ten (10) days in advance, shall be conducted during normal business hours at Licensee's facilities, and shall not unreasonably interfere with Licensee's business activities. Licensee agrees to maintain all log files and provide Aspera access to such files during the review. If Licensee's use of the Software is found to be greater than contracted for, Licensee will be invoiced for the additional licenses and the unpaid license fees shall be payable in accordance with this Agreement. Licensee also acknowledges that the Software may include password protection, anti-copying subroutines or other security measures designed to monitor the usage of the Software for license management purposes and Licensee will take no action to circumvent or otherwise tamper with such measures.

10.   TERMINATION

This Agreement or an Order Schedule hereunder may be terminated (a) by mutual agreement of Aspera and Licensee, (b) by either party if the other party is adjudicated as bankrupt, or if a petition in bankruptcy is filed against the other party and such petition is not discharged within sixty (60) days of such filing, or (c) by either party if the other party materially breaches this Agreement and fails to cure such breach to such party's reasonable satisfaction within thirty (30) days following receipt of written notice thereof. Upon any termination of this Agreement or an Order Schedule, all applicable licenses are also terminated, and Licensee shall immediately cease use of the applicable Software and certify in writing to Aspera within thirty (30) days after termination that Licensee has destroyed or returned to Aspera such Software and all copies thereof. However, if this Agreement is terminated, but not outstanding Order Schedule(s), the terms and conditions of this Agreement shall continue to govern such Order Schedules. Termination of the term of this Agreement or an Order Schedule shall not limit either party from pursuing any remedies available to it, including injunctive relief, or relieve Licensee of its obligation to pay all fees that have accrued, have been paid, or have become payable by Licensee hereunder. All provisions of this Agreement which by their nature are intended to survive the termination of this Agreement (including, without limitation, the provisions of Sections 4, 5, 6, 7, 8, 9, 10 and 11) shall survive such termination.

11.   GENERAL PROVISIONS

11.1.   *Entire Agreement and Controlling Documents*. This Agreement, including any Order Schedules, contains the entire agreement between the parties with respect to the subject matter hereof, and supersedes all proposals, understandings, representations, warranties, covenants, and any other communications (whether written or oral) between the parties relating thereto and is binding upon the parties and their permitted successors and assigns. Only a written instrument that refers to this Agreement or the applicable Order Schedule and is duly signed by the authorized representatives of both parties may amend this Agreement or such Order Schedule. The terms and conditions contained in any purchase order issued by Licensee shall be of no force or effect, even if the order is accepted by Aspera. In the event of a conflict in terms among the Agreement and an Order Schedule, the Agreement shall control unless the Order Schedule expressly states the provision that it intends to amend. This Agreement shall apply to all Software and Services ordered by Licensee or delivered to Licensee by Aspera.

11.2.   *Assignment*. This Agreement shall be binding upon and for the benefit of Aspera, Licensee and their permitted successors and assigns. Licensee may not assign its rights under this Agreement either in whole or in part without the prior written consent of Aspera. Aspera shall have the right to assign this Agreement in whole as part of a corporate reorganization, consolidation, merger, or sale of all or substantially all of the assets to which this Agreement relates. Any attempted assignment or delegation without such consent will be void.

11.3.   *Export*. Licensee acknowledges that the export of any Software is subject to export or import control and Licensee agrees that any Software or the direct or indirect product thereof will not be exported (or re-exported from a country of installation) directly or indirectly, unless Licensee obtains all necessary licenses from the U.S. Department of Commerce or other agency as required by law.

11.4.   *US Government Rights*. The Software is a "Commercial Item," as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), and is comprised of "commercial computer software" and "commercial computer software documentation". If acquired by or on behalf of a civilian agency, the U.S. Government acquires this commercial computer software and/or commercial computer software documentation subject to the terms of this License as specified in 48 C.F.R. 12.212 (Computer Software) and 12.211 (Technical Data), as well as Part 27.405(b)(2) of the Federal Acquisition Regulation ("FAR") and its successors. If acquired by or on behalf of any agency within the Department of Defense ("DOD"), the U.S. Government acquires this commercial

computer software and/or commercial computer software documentation subject to the terms of this License as specified in 48 C.F.R. 227.7202-3 of the DOD FAR Supplement ("DFARS") and its successors. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFARS, or other clause or provision that addresses Government rights in computer software or technical data under this License. Any restrictive markings or legends on the software shall not be removed by any party.

11.5. *Governing Law; Jurisdiction*. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts, without regard to its conflict of law provisions. The United Nations Convention on Contracts for the International Sale of Goods is specifically excluded from application to this Agreement. Each party consents to, and agrees that each party is subject to, the exclusive jurisdiction of the District Court of Massachusetts or the Suffolk Superior Court of the Commonwealth of Massachusetts with respect to any actions for enforcement of or breach of this Agreement.

11.6. *Headings; Counterparts*. The headings to the sections of this Agreement are for ease of reference only and shall not affect the interpretation or construction of this Agreement. This Agreement may be executed in multiple counterparts, each of which shall be deemed to be an original and all of which shall be deemed to be an original instrument. Once signed, any reproduction of this Agreement made by reliable means (e.g., photocopy, facsimile) shall be considered an original.

11.7 *Relationship of the Parties*. Aspera and Licensee are independent contractors, and nothing in this Agreement shall be construed as making them partners or creating the relationships of employer and employee, or principal and agent between them, for any purpose whatsoever. Neither party shall make any contracts, warranties or representations or assume or create any obligations, express or implied, in the other party's name or on its behalf.

11.8 *Force Majeure*. Except for the obligation to make payments, nonperformance of either party shall be excused to the extent that performance is rendered impossible by strike, fire, flood, governmental acts or orders or restrictions, failure of suppliers, or any other reason where failure to perform is beyond the reasonable control of the non-performing party.

11.9 *Notices*. Any demand, notice, consent, or other communication required by this Agreement must be given in writing and shall be deemed delivered upon receipt when delivered personally or upon confirmation of receipt following delivery by internationally recognized overnight courier service, in each case addressed to the receiving party at its address set forth on an Order Schedule, with a copy to the Legal Department at the address first listed above for each party. Either party may change its address by giving written notice of such change to the other party.

11.10 *Waiver and Severability*. Performance of any obligation required by a party hereunder may be waived only by a written waiver signed by an authorized representative of the other party, which waiver shall be effective only with respect to the specific obligation described therein. The failure of either party to exercise any of its rights under this Agreement will not be deemed a waiver or forfeiture of such rights. The invalidity or unenforceability of one or more provisions of this Agreement will not affect the validity or enforceability of any of the other provisions hereof, and this Agreement will be construed in all respects as if such invalid or unenforceable provision(s) were omitted.

11.11. *Use of Name and Customer Reference*. Licensee agrees that (a) Aspera may use Licensee's name in Aspera's customer list, b) it will serve as a customer reference, and, (c) upon approval by Licensee, it will issue a press release and case study generally describing the parties' relationship under this Agreement.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the Effective Date first written above.

Aspera Technologies, Inc.   **Licensee:**

By: _____   By: _____

Name: _____   Name: _____

Title: _____   Title: _____

Date: _____   Date: _____

Exhibit A
Order Schedule

Software:

Number of Devices/Servers/Qualified Desktops:

License Term:

License Fees:

Maintenance Term:

Maintenance Fees:

This Order Schedule is governed by the terms and conditions of the Software License and Services Agreement between Aspera and Licensee dated _____.

Agreed and Accepted:

Signature: _____

Name: _____

Title: _____

Date: _____

Exhibit B
Product Description for SmartTrack, - ST, IC, CM, DM, FC and FM

General Features of SmartTrack

SmartTrack complements any IT infrastructure and is fully operational from day one.

SmartTrack is available as a licensed product or as a hosted application -- the software runs either on the company's server or in the Aspera data center. SmartTrack's 100 % web-based architecture delivers flexibility and scalability. Our customers can choose the database server, web server, and operating system:

- ➤ Databases: MySQL, MS-SQL, or Oracle

- ➤ Web Servers: IIS or Apache

- ➤ Operating Systems: Windows Server or Linux

Our cloud service guarantees right from the get-go a fully operational solution which is reliable, secure, and unbeatably cost-effective.

Integration and User Security

- ➤ Having specialized in large organizations and heterogeneous IT landscapes, SmartTrack seamlessly integrates with the processes and tools already used by our customers. This is supported by flexible data interfaces for importing and exporting data, including: CSV, XLS, and Web Service XML/SOAP. Aspera has long-standing experience with integrating hundreds of external systems including inventory tools, ERP systems, and ITSM suites

- ➤ User authentication is either carried out through an inherent user administration or through any external mechanism, for example Single Sign-On

- ➤ The user administration works with object-oriented roles. Thus, admins can restrict user profiles and permissions to certain publishers and/or products and organizational units (group, company, business unit, cost center). The restrictions affect all features down to report creation

User-friendly with Easy Configuration

- ➤ SmartTrack is multi-lingual, it comes standard with English and offers user interfaces in Brazilian Portuguese, Chinese, French, Italian, Japanese, and Spanish

- ➤ The SAM Tool comes with an extensive user manual and context-sensitive online help

Each user can store individual configuration and report settings

- ➤ The e-mail interface is configurable. It will send e-mails on specific events, for example when license or maintenance contracts expire, or when licenses are added or removed

- ➤ SmartTrack is universally accessibility. For example, the entire SAM Tool can be controlled by the keyboard, and the document structure is compatible for screen readers

- ➤ SmartTrack fully supports UTF-8/Unicode

Data Management
- ➤ Data exchange with external systems via web services (XML/ SOAP) and/ or CSV/ XLS(X)

- ➤ CSV/ XLS(X)/ XML export are available with one-click

- ➤ Configurable E-Mail interfaces for event-driven generation and distribution of emails, e.g. expirations of contracts and maintenance, license transfers, etc.

1. ST - SmartTrack Core

SmartTrack manages all license types and metrics (e.g. device, user, named user, concurrent, processor, PVU, enterprise, MIPS, etc.), allows numerous distribution and transfer operations and answers all questions regarding a license's origin, organizational assignment and maintenance status by means of a freely configurable report engine. Histories permitting to track organizational changes and upgrades are stored for all licenses.

Data Management

All data is linked to the organizational structure of the customer. SmartTrack has four organizational levels for the allocation of information such as licenses, devices, installations, usage, etc. Usually organizational master data comes from external sources and is periodically updated to SmartTrack via XML/SOAP or CSV.
In parallel, SmartTrack manages geographical parameters such as locations, countries, and regions and is able to cross-reference the organizational with the geographical structure. In addition, license pools (which can be defined for different organizational levels/units) are taken into consideration, using enhanced features such as automatic consideration of downgrade rights, organizational/geographical limitations, etc.

Base Licenses, Updates, and Maintenance

SmartTrack maps update chains (update/upgrade paths) as well as downgrade paths. Downgrade rights are listed in the Aspera Master Catalog that comes with the application. The downgrade matrixes are described in detail and can also be amended manually. All changes in the license inventory (e.g. update licenses and maintenance) are recorded so that individual license histories is a standard feature of the system. This functionality is based on the selection of the appropriate base licenses and the allocation of the corresponding update or maintenance licenses. Utilized update licenses are part of the base license history and move simultaneously in the expired licenses inventory. When running a compliance check, upgrade and downgrade paths are detected and automatically taken into consideration.

License Management Operations

The dynamic process of a license transfer--from request to billing--is automatically captured by SmartTrack. An integrated document management gathers license proofs, including scanned original documents, and then refers these documents to the license inventory—so proof of correct licensing can be accessed from every part of the world.
Whether providing overarching strategy for IT asset and service management during the contract negotiation or enabling effective Audit Defense, SmartTrack supports a successful SAM program with efficiency, transparence and bullet-proof data quality.

SmartTrack Features:

Data Management
- Maintenance of master data through data import (XML/SOAP, XLS(X), CSV, import connectors), semi-automatic (CSV) or via the user interface
- Audit-proof recording of master data histories, e.g. in case of new cost center names
- Mapping of software license types (device, user, named user, concurrent, processor, PVU, enterprise, MIPS, etc.) through Metric Engines
- Mapping of combination products such as suites, bundles, license packs
- Connection of ERP systems and/or suppliers to capture license data from the procurement process (XML/SOAP, XLS(X), CSV, import connectors)
- Transfer of licenses to other companies, business units and cost centers
- Leasing/selling of licenses between companies of the same group including documentation and cost charging

- Pooling of licenses at all organizational levels (group, company, business unit, cost center)

- Free assignment of licenses to devices, users, processors, etc.

- Detailed history of each license including all changes such as transfers, updates, assignments to different devices

- Update pool for custom-management and utilization of update licenses

- Creation and storage of update chains

- Import pool with extensive functionality for automatic validation of license imports and post-processing of incorrect data

- Management of import transactions and the obtained license positions, master data comparisons, problem monitoring, tools for bulk processing

- Management and time-sensitive monitoring of all maintenance options and temporary licenses at the contract, article, and individual license level

- Management of license certificates including file attachments (e.g. document scans) and references to freely selectable licenses; the link between the license certificate and the assigned licenses remains unaffected during all operations (transfer, update)

- Management of serial numbers

- Clear presentation of all important events during a selected period of time (expiration of license or maintenance contracts, etc.)

Data Access and Reporting
- Selection of the license inventory by freely configurable criteria

- CSV, XLS(X), and XML export for external report generation, e.g. in Excel or Crystal Reports

- Predefined report formats with dynamic generation of PDF files

- Individual reports based on a professional reporting engine with common emitter for all Office formats

- Scheduler for automatic creation and distribution of reports

- Management console / KPI dashboard ("Cockpit") with intuitive, graphical representation, e.g.: degree of licensing, degree of under-licensing, top ten over-licensed products, important manufacturers, etc.

1.1 IC - Inventory Connect

(Functional part of SmartTrack Core)

With SmartTrack's Inventory Connect functionality (IC), companies determine their state of licensing and minimize risks with reliability and legal security. With IC you can see a holistic overview of all deployed licenses and software usage. Over-licensing and under-licensing are identified so that compliance with any given software publisher can be achieved and proven at any given time.

IC is designed to allow SmartTrack to connect to external software scanning, discovery, CMDBs, and other software data collecting systems. IC offers standard connectors to all common systems and databases collecting information about installed or used software. These include solutions such as HP AssetManager, Altiris Inventory Solution, CA IT Asset Manager, IBM Tivoli, BMC Remedy, FrontRange, Microsoft SCCM, and many more. Usage data is defined by the relevant license and contract model and includes: installation data, number of users, amount of active processors and/or used computing power (MIPS).

A Single System of Software Installation and Usage Data

IC consolidates and aligns the usage data from these systems with the license inventory from SmartTrack. Duplicates are detected when inventory data is imported to SmartTrack and reported in the import logs. In this way it considers all allocations and auto-corrects inaccuracies via integrated synonym logic, e.g. different package names for the same product. Downgrade paths are recognized and taken into consideration for the compliance report. Users can access historical license compliance situations selected by product and/or organization unit.

Server Software Management and Metric Engines

IC has the ability to map host-to-guest relationships (in virtual environments), and also has built in logic (Metric Engines) to calculate device based software consumption (software and hardware partitions / processor / sub capacity) as required by the likes of IBM / Oracle. Such license metrics are not directly installation/asset based.
Metric Engines (ME) are Aspera's answer to this challenge. To determine the effective license requirement (how many licenses you need to cover your usage), various factors hinged on asset data, such as hardware properties and virtualization scenarios, must be taken into consideration and made available to the license management system. The required data e.g. CPU cores, are taken from integration with CMDB and other data sources. If a customer does not have this data available it must be included as a part of the project—otherwise automation for complex license metrics in not feasible.
The technology behind the SmartTrack Metric Engines is developed using the product use rights outlined in each license. Depending on the product's license metric and the publisher's rules for determining usage SmartTrack automatically selects the appropriate ME (algorithm) to calculate the effective license demand in a particular cost center, business unit, or the entire company.

Compliance Intelligence

IC is not only capable of working through hundreds of millions of installation and usage data records nightly, but is also a master of CIO compatible reports thanks to the integrated business intelligence (BI) functionality. The most noteworthy report from IC is the Compliance Intelligence that allows quick and easy "slice 'n dice" compliance and financial figures from the enterprise level down to cost center and from publisher to single product.

IC – Inventory Connect Features:

Data Management
> User-configurable connectors for the automatic transfer of installation and usage data via XML/SOAP and/or CSV/XLS(X) from third party systems such as Microsoft SCCM, HP Asset Manager, ServiceNow, BMC Remedy, and many others

> Manual entry of installation, usage, and metering data

Software Recognition
> Signature-based software recognition based on raw inventory/scan data, including: ARP, MSI, file scan, packaging, AD, ISO 19770-2 software tags, and much more

> Robust and high performance recognition algorithms for cyclical processing of freely configurable data sets

> Flexible signatures through wild cards

> Complex rules for the logical combination of different signatures (for example: AND linkage of ARP and file scan)

> Assistant for the assignment of signatures and rules for commercial products

> Import, processing, and analysis of metering information (last usage, usage frequency, etc.)

Effective Usage
> Dedicated Metric Engines for metric-specific reporting of effective license demand based on recognized installations and usage data

- Consideration of virtual environments (partitioning, clusters) as well as complex metrics in the server world such as: IBM PVU, Oracle Database, Microsoft Windows Server)

Compliance Check provides

- Comparison of license and usage data

- Consideration of downgrade paths stored in the catalog with automatic optimization and correction of the analysis results

- Parameterization of the analyses if the licenses and software usage are assigned to different organizational units

- Example: assignment of licenses to one cost center, but assignment of the usage rights to several cost centers

- Selection of analysis results by freely configurable criteria (catalog, organization, geography)

- Storage of analysis profiles: parameterization, analysis reporting, sorting, filter, etc. for individual users, group of users, or system wide

- Drill-down all organizational levels in the compliance check

- Result sets for direct comparison of different scenarios, e.g. inclusion/exclusion for the planned procurement of licenses

- Analysis history: analysis of past license and usage situations at any organizational level

- "Compliance Intelligence" – Interactive analysis of the compliance situation and potential risks

1.2 CM - Contract Management

(Functional part of SmartTrack Core)

With SmartTrack's Contract Management functionality (CM), you can administrate and communicate software procurement master agreements, even in complex organizational structures.

Manage Complex Software Agreements in Complex Organizational Structures

CM enables you to map the license and contract models of all manufacturers and involve all software suppliers in the license management process. It is an integrated part of Aspera's License Management System, SmartTrack, and designed to manage the entire contract lifecycle.

CM maps the relationship of multi-dimensional contractual arrangements. It records basic terms and conditions, specific contract types (purchase, rental or enterprise agreement, obligation to purchase a defined volume, etc.), enrollments, and individual licenses purchased under master agreements.

Moreover, CM provides the flexibility needed to manage all other types of traditional IT contracts from leasing up to hardware maintenance agreements. In contrast to many other general contract management tools, CM is thus optimally designed to meet the specific requirements of software license management while offering the scalability required for all other types of IT contracts.

Generic contract management solutions cannot handle the complexity of volume agreements. Management of contract types and classes, internal and external number ranges, outsourcing and transfer rules, n:n relations between contracts, integrating the (organizational/geographical) scope into the roles and rights concept as well as the management of maintenance periods and a document archive are only a few of CM's abundant, practical functions and it uses this data actively when rolling up entitlements in reporting.

Contract Attributes and Alerts

All contract details are recorded: contract and enrollment numbers, validity periods, discount levels, maintenance options, cancellation periods, contract number and version, responsibilities, entitlements, organizational and geographic definitions or restrictions as well as dependencies with other contracts, etc. Assigning software contracts to other software contracts is

standard in the tool.

CM also includes a wide range of financial management and budget planning features such the management of cash flows, amortization rules, and cost allocations. From the automatic extension of contracts to notices of expiration deadlines — connection to the central email notification server ensures that no opportunity or deadline is missed. SmartTrack CM provides event-controlled generation and distribution of emails, which can be individually configured, in case of:

a) Failure to achieve contractual targets

b) The expiry of contracts

c) The expiry of maintenance options

d) The expiry of periods of notice, and

e) The automatic renewal of contracts

CM comes with interface communication via CSV or XML/SOAP (web service). All common contract management systems can be interfaced this way. CM offers document management for the original contracts including documents scans, which can be referenced to any number of licenses. References to contract documents, proof of license, or special contract conditions can be imported (any data format) or linked through a URL to existing archives. Any changes (updates, transfers) to licenses or contracts do not affect the connection of the license to the contract or scanned documents.

CM – Contract Management Features:

> Consolidating and monitoring contracts, enrollments, and commitments

> Import of contract data from third party systems or connection to contract management systems

> Multi-level contract hierarchy (main contracts, enrollments)

> Precise definition of the organizational scope of main contracts and enrollments using the organizational units and roles and permissions stored in SmartTrack

> Free definition of pools (e.g. Microsoft applications, systems, servers), targets (e.g. point values, license numbers), and monitoring periods (e.g. milestone checks)

> Integration of license data into the contract management permitting real-time monitoring of the degree of utilization of contracts

> Event-controlled generation and distribution of emails in case of:

a) failure to achieve contractual targets

b) the expiry of contracts

c) the expiry of maintenance options

d) the expiry of periods of notice

e) the automatic renewal of contracts

> The alert periods can be individually configured

> Contract monitoring (point values/license numbers reached vs. milestone checks) by means of Gantt diagrams

> Management of the original contract documents including file management of document scans and reference to freely selectable licenses: the link between contract data and assigned licenses remains unaffected during all operations (transfer, update)

> Selection of the list of contracts by freely configurable criteria

1.3 DM - Data Management

(Functional part of SmartTrack Core)

Overview and Monitoring

An overall view of the management process is critical for the entire SAM process. How is the performance of software recognition and license clearing? Which manufacturers pose a high audit risk? How is the quality of license data developing? In short: Where is action required? SmartTrack's Data Management functionality (DM) is a monitoring tool that provides a comprehensive and clearly structured view of all relevant information needed for a sound basis to make important decisions.

Managing Complex Data and Imports

The SmartTrack A-Model provides a clear view of all activities and data involved in the software asset management process. It illustrates the contexts and provides all important information with a single click. The MM expands SmartTrack's functionality and brings the A-Model to life: A traffic light rating system indicates the performance at each level. The threshold values of the rating system can be flexibly adjusted to the expected values. Behind each traffic light there is a detailed presentation of all indicators and issues which explain the color coding and help you make the right decisions. With the DM you literally get a clear picture of the overall performance of your system.

Data quality starts at the bottom because SmartTrack has to load and process master and group data from various interdependent data sources in the enterprise environment. If a cost center cannot be imported, the devices assigned to it are also lost and their installation data cannot be loaded either. Consequently, the result of the compliance check is not accurate. In fact, the results delivered the license management system are only as precise as the data on which they are based.

As this has long been understood by Aspera we developed a key indicator for all imports: the import success tracker shows which percentage of the data supplied has been correctly loaded into the system (see example to the right). It permits to distinguish between data and feeds and to continuously monitor the interfaces of the license management system. Trends can quickly be identified by means of an analysis over time.

Developed in close cooperation with our world renown customers the key performance indicators (KPIs), such as the clearing success of incoming licenses and the recognition rate of inventory raw data, and the clear management charts (e.g. development of clearing status, age statistics of incoming licenses) give you the opportunity to respond immediately to any unwanted change.

Data Management includes a KPI directory with more than 20 standard KPIs which are updated on a daily basis. These can be tailored in different dimensions such as time, organizational unit, catalog, and geography. Furthermore, the standard KPIs can be customized as needed and new KPIs to be implemented. Different user interfaces, which follow the roles and permissions concept set in SmartTrack, each have the intuitive traffic light system to support instant access to the desired KPIs.

In-depth Compliance Reports

Compliance, the central report provided by the license management system, can be precisely calculated by SmartTrack for each cost center and product. The Compliance Intelligence viewer summarizes the results of the compliance check and their financial implications for top management. And Data Management even goes one step further: a dynamic, personalized dashboard displays all results that are critical for the decision at hand – the highest audit risks, the most expensive licenses, the most important publishers and the biggest contracts.

DM – Data Management Features:

Creating and saving of KPIs

> More than 20 pre-defined standard KPIs for monitoring of the data and processes of each part of license management, including: success of import, success of license-clearing, product recognition rate, pricing coverage, audit-risk

> Explanation of KPIs for better understanding

- ➤ Possibility of developing customer-specific KPIs

- ➤ Cronjobs for regular calculation of the data: actual and configurable

Performance monitoring of all SAM-relevant processes
- ➤ Intuitive presentation via traffic-light rating system

- ➤ Configurable traffic light expected values

- ➤ Standard KPIs for license management

Dashboard with dynamic management widgets
- ➤ Up-to-date and configurable

- ➤ Different charts and evaluation, e.g. speedometer, bar chart, table

Pre-defined standard evaluations of license management

1.4 FC - Flow Control

(Functional part of SmartTrack core)

In order to increase the efficiency and transparency, license management has to be understood as a cross-sectional process which requires the integration of numerous systems. Which systems have to be integrated depends on the customer's individual circumstances.

Many Years' Experience with SAM Processes

The interfaces and components of SmartTrack's FlowControl have been developed through 12 years of practical experience. The number of possible variations is almost unlimited.
FlowControl is a fully configurable workflow engine. It uses connectors to communicate with electronic shopping carts, ESD and ERP solutions (SAP, Oracle, and more), scan and metering tools as well as IT asset, contract, and service management systems. This means that data is kept consistent and manual intervention is reduced to a minimum.
Every time a new software procurement or usage request (installation, assignment or activation) is received, Flow Control analyzes the current license inventory and automatically assigns any spare licenses. If no licenses meeting the request can be located, FlowControl generates a procurement request and forwards it to the procurement department (or simply send an e-mail to the ticketing system). Or SmartTrack can be directly interfaced to the procurement system. Some Aspera customers use FlowControl to generate 'shopping lists' using OCI for SAP SRM.
Once the licenses have been purchased, FlowControl, acting as a SOAP client, assigns them to the respective requestors and reports the new status to the software deployment and IT asset management systems.
FlowControl provides a real-time view of the entire process allowing you to prevent problems before they even occur.
FlowControl adapts to your processes, not vice versa. You thus benefit from a powerful process framework which can be easily integrated into any environment and adds SAM to your company's ITIL strategy.

FC – FlowControl Features:

- ➤ ITIL based freely configurable process templates with pre-installed templates for:

  - o   Requisitions

  - o   Multi-level approval processes

  - o   Procurement (integration in ERP systems)

  - o   Contract management

  - o   Catalog management (integration in catalog management systems)

- o Strategic sourcing

- o Deployment (integration in ESD systems)

- o Monitoring

- o Optimization

- o Retirement

- o Joiners/leavers (integration in HR systems)

- o New product

- o New version

- o Pooling

- o Cost allocation

- o Cross charging

- o Licenses received

> Seamless integration in service-oriented architectures (SOA) through complete provisioning of the business logic as a Web Service via XML

> Cross-system end-to-end processes combining commercial and technical data

> Predefined roles for:

- o Requestors

- o Product owners

- o Vendors and manufacturers

- o Cost center managers

- o Business unit managers

- o Compliance managers

- o Contract managers

- o Catalog managers

- o Procurement managers

- o End users

1.5 FM – Financial Management

(Functional part of SmartTrack core)

Financial Management (FM) complements the compliance management of SmartTrack with the cost perspective of software license management, adding budgeting and chargeback functionality.

Budget Forecasting and Controlling

A key success factor for IT controlling is having a constant overview of costs and budgets. Apart from recording current costs and payment obligations, the forecast for the coming year has to be regularly updated and adjusted.
For budget and expense planning FM can breakdown costs by type and budget. Payments can be matched up to their corresponding position in the expense plan. And the inclusion of liabilities further supports cost control and permits taking

early measures if IT expenses are too high. And an Excel sheet with current data for budget management can be produced at the touch of a button.

In addition to usage and maintenance costs, SmartTrack can record all payments made in connection with IT master agreements, e.g. for the procurement of hardware or services as well as licenses. You can trace licenses and costs and chargeback based on users, devices, license ownership, or installation.

Widespread Acceptance of Internal Prices and Charging Methods

What's more the total costs have to be proportionally allocated to various IT projects and cost centers. Maximum transparency and focusing on the actual use of IT resources will help ensure widespread acceptance of your internal prices and charging methods.

Cost distribution keys define how the costs are allocated to projects and depreciated over time. All allocated costs can be presented in a full report, graphically analyzed, and automatically sent out to those who need it, as well as forwarded to an external system (e.g. ERP) over open interfaces.

Reports

With FM's integrated reporting engine there is no limit to creating customized reports on IT costs. For example, the costs per manufacturer and fiscal year for licenses and maintenance, or savings made by re-using licenses, or relevant budget figures can all be visually evaluated in charts and dashboards. Furthermore, FM permits the rapid creation of customer-specific charts and dashboards. Every SmartTrack user has a report directory for convenient management of the analyses produced.

Financial Management tracks cost information associated with software to allow you to analyze the financial costs associated with your license compliance position.

FM – Financial Management Features:

Cost Transparency
- Breakdown by time, cost, project
- Built-in currency exchange rates on a daily basis
- Cost charging for cost/profit center model, e.g. based on actual software usage
- Calculation of adequate service prices
- Depreciation with configurable business rules
- Integration with existing ERP/Controlling tools

Financial Evaluation of Relevant Assets
- Intelligent price assistant: Automatic calculation of product reference prices based on complete license procurement history and list prices from the catalog
- Product and article reference prices for a financial evaluation of the compliance results: cost drivers and audit risks
- Decision support for software procurement
- Customer-specific financial figures & reports

Reporting
- Reporting engine for custom business reports, charts, and management dashboards
- Support of common document formats
- Many standard reports: Cost and risks of compliance, Forecast of planned costs, Cost avoidance by software license management, Multiple installs
- Interactive drill-down in the license balance

> Planning and controlling of future costs

> Management of planned and current payment commitments

> Export to MS Excel

2. Optimization and Simulation

Beyond Compliance: Optimization at Your Fingertips

Optimization and Simulation picks up where other technologies leave off – it changes a static picture of a compliance balance into a motion picture, leveraging features that helps you analyze the endless licensing options and determine the effects of an ever-changing infrastructure on the demand for licenses.

The OSM puts at your fingertips the necessary information to reduce licensing costs and strategically plan infrastructure changes and software purchases. Advanced features analyze and illustrate the impact of changes in the operational environment on the demand for licenses, as well as directly compare alternative licensing models. With this valuable information users can:

> Simulate the effects of different server, virtualization, and cluster scenarios on the demand for licenses

> Recommend changes to the operational environment in order to reduce the demand for licenses

> Compare alternative licensing options and evaluate the financial impact of making changes

> Optimize budget planning and preparation for true-ups and contract renewals

> Improve the compliance position in an audit, based on the available licenses owned by the company

Strategic License Management

The information produced by Optimization and Simulation has a wide range of applications across the business. Architecture and Portfolio Management can be strategically joined with transparency into the licensing costs associated with the software usage and hosting. Routine and project-based software plans can be actively supported and improved. Contract negotiations are no longer based on manually created assessments of a single snapshot, but driven by calculated infrastructure changes, optimized licensing, trend analyses—with an eye constantly on the future and strategic planning. And, instead of simply supplying the required data for a software audit, the company can defend its compliance position with transparent and optimized apportionment of its licenses.

Optimization and Simulation provide answers to many important questions. Here is an excerpt:

> How much software budget should be planned for the coming period?

> Would another license type be less expensive?

> How does a planned change in the architecture or configuration impact the licensing costs?

> Which contract model is right for the company's future software use?

> What server configuration is most optimal for the existing licenses?

As a result, license management in a company becomes an active—strategic—component of architecture design, IT contract and procurement planning, and portfolio management. It is able to concretely answer business questions regarding the monetary benefits of its activities. The evidence does not have to be manually researched and prepared—it's automatically and perpetually available in Aspera's Optimization and Simulation.

Optimization and Simulation Features:

Out-of-the-Box-Reports Show Savings Achieved Through License Management

- Demonstrates the success of Software License Management over time with out-of-the-box (OOTB) reports, such as pie-charts that how much savings have been achieved through license management, and the potential to save even more

- One-click automatic analysis of cost savings by applying Product Use Rights, such as: parallel use rights, secondary copy rights and suite use rights

- Overview charts and detailed pie charts for potential and realized cost savings

- Price Assistant for comprehensive analysis of all license costs

- Explanations of data requirements to achieve higher optimization and highlighting low data quality issues—revealing the potential to save more by improving the data

- Warning system notifies of high risk situations, such as Oracle Database installed on a cluster

- Complete history function: tracks the development of cost savings over time and provides trend analyses to help forecast

Demand Optimization: Support Strategic Decisions

Generating the information required to make strategic decisions is at the forefront of Optimization and Simulation.

- Create one-click comparison of all the available license metric alternatives for server products, such as Oracle Database, Microsoft Windows Server, Microsoft SQL Server, and IBM PVU

- Simulate licensing conditions for all servers, virtual servers and clusters to identify the optimal licensing model for the given infrastructure and configuration

- Evaluate and compare – with one click – the financial impact of all licensing options such as processor-based or named user metrics, data center licensing, standard or enterprise, full capacity or virtual capacity

- Generate automatic analyses and reports of potential cost savings

- Generate automatic analyses of the complete infrastructure and software portfolio (architecture, server configuration, software inventory)

- Make an immediate difference: Interactive features for immediate decision making

- Create future-proof and scalable optimization strategies with features that cover new licensing models on an ongoing basis

- Track the development of potential and realized cost savings over time and use trend analyses to forecast with the complete history function

Contract and License Optimization Support Day-to-Day Decision Making

License optimization aims to use the existing contract and license inventory as efficiently as possible - increasing cost-efficiency and reducing additional license purchases to only what is really necessary:

- One-click comparison of the available license metric alternatives based only on the licenses owned by the company

- Automatic analysis of all licenses' compatibility with the current operational environment

- Intelligent Optimizer: Assign licenses to servers or server clusters for maximum business value

- Before and after compliance views to directly evaluate effects of strategic decisions

- Simulate alternative contract models to better meet licensing needs of the company

- One-click Optimization: Interactive features for immediate decision making

User-friendly Operation

Optimization and Simulation are integrated into Aspera SmartTrack, and their features are immediately available—no additional training is required.

3. SAMI – SAM Intelligence

SAM Intelligence presents business insights in visual charts and graphs that are easy to understand. Share your important analysis with managers and stakeholders no matter what their experience is — or isn't — with SAM and license management.

Empower fast, informed SAM decisions

SAM Intelligence analyzes important questions about your SAM processes and performance over any time period. The platform ships with essential metrics to quickly show Key Performance Indicators (KPIs).
Each KPI is visualized in a chart or graph of your choice. It's easy to change the KPI options or drill into the details. You can optimize the application dashboard for each team's area of responsibility or a person's specific role.
The technology works directly with our Aspera SmartTrack platform, using its license management data as the source, and viewing that data over time and from any angle.

Make complex data feel comfortable (and colorful)

SAM Intelligence shows its analysis in measurable, insightful reports with easy-to-read charts and graphs. It's an appealing, automatic way to give the right people the right information about license compliance and optimization.
Now your team can identify instantly how to their processes more efficiently, get a quick start to saving money, and avoid risk in license management. Even better, your SAM Intelligence reports will help managers and the C-Suite to successfully plan the company's future and invest in SAM, your team, and you.

SAM Intelligence Features:

> Immediately usable standard reports

> Supports „Ad Hoc" analysis

> Specific interface between SmartTrack and SAM Intelligence

> SmartTrack compatibility ensured by SAM Intelligence

> SAM Intelligence can be updated independently from SmartTrack (compatibilities are provided in a support matrix)

> Configurable dashboards

> Flexible access options via workstations or mobile devices

> Reports available as PDF, XLS or CSV files

> Report creation can be scheduled to send these reports automatically to predefined addressees via e-mail.

> Historical data changes become visible

> Saved reports can be reached and shared via hyperlink

> LDAP/AD authentification is supported

> Various diagram types can be used for report creation

> Available GUI-languages: German, English, Spanish, Italian, French)

4. SLC – SmartTrack License Control for SAP

Considerable Cost Savings and Transparency:

Optimize Your SAP Systems with SLC for SAP

There are a lot of questions about the licensing of SAP Systems, such as: Which employees have an account in which systems, and what license type do they have? Is the license type assigned to them actually necessary for the employees' tasks? How many SAP licenses do you actually need? Optimizing your SAP user information enables you to obtain SAP System licenses based on your needs and to reduce costs. To reduce the need for SAP licenses to the amount that is actually required in a simple and convenient way while achieving maximum transparency, you need an optimized, comprehensive and strategic license management for SAP.

Make reliable decisions thanks to transparency

In complex IT landscapes which have grown over the years, SmartTrack License Control for SAP builds bridges between contracts and systems and creates new transparency. All of your SAP contracts (metrics, standards, individually agreed terms) are saved and managed in a central location. In addition, the respective Terms and Conditions (AGB) and SAP terms and price lists (PKL) for the individual contracts are filed together with the versions applicable at the time of purchase. Connecting to the SAP Service Marketplace allows you to read all relevant license metrics and adjust them for your current contracts. This way, you can get a more precise overview of changing conditions and whether the modified conditions are more appealing to you.

SmartTrack License Control for SAP ensures compliance

Connecting to the SAP Solution Manager (SolMan) allows SmartTrack License Control for SAP to read all information about the SAP Systems used. This way, all changes to your SAP landscape can be represented and the necessary licenses listed. However, the SAP System measurement (USMM and LAW) carried out using SolMan only takes account of the standard metrics. SLC for SAP also records your individual terms and critically examines the results of the SAP System measurement, where it performs a realistic comparison of the licenses required and the licenses available. An alarm service informs you of any sublicensing. At the same time, SLC for SAP uses your individual contractual provisions to restore the correct licenses to the SAP Systems. This way, you are always compliant with your SAP contracts.

SLC for SAP determines your actual licensing needs

To set up an efficient, needs-based license management, all of your relevant products must be recognized and their use determined. With the aid of a workflow process, new products are managed over SLC for SAP and assessed in terms of licensing needs. This way, you always know whether you have all required licenses in stock, which licenses you are still using, and which ones you no longer need.

SLC – SmartTrack License Control for SAP Features:

Data management

> Communication with SAP Systems and clients, SAP routers, SAP Proxies.

> Use of SNC for secure communication with SAP servers.

> Automatic detection of the Clients registered in the SAP Solution Manager.

> Automatic detection of SAP system and client attributes.

> Central repository for SAP user accounts data.

> Import of Account master data and roles (XML and Import-Connector)

> Anonymized import of usage data (Transactions, Reports, Dialogs) (XML and Import-Connector)

> Import of Employee master data (CSV, AD/Tivoli, SAP-IDM)

- Administration of license data (weights and prices, license matrix) on the interface.

- Automatic check of the connected SAP landscape and required authorizations.

- Import and automatic classification of special users (Developer)

- Import of SAP price lists and contract data (XLS)

- Import of SAP measurement data from LAW (official SAP measurement tool)

- Automated process for user classification, license consolidation and license assignment to the accounts (Move-To-SAP).

User administration

- Central overview of the SAP user data independent of the SAP CUA tool.

- Qualitative analysis of incorrect data achieves top data quality.

License compliance

- User accounts of an employee are grouped by a personalized ruleset.

- User Accounts grouping according to Name, Mail, Organizational unit, SNC-Name etc.

- Account grouping compliant with the SAP USMM and LAW measurement tools.

- License consolidation per employee and mapping of a dependency matrix avoids duplicate license assignments.

- License consolidation according to a personalized ruleset.

- Multiple license simulation scenarios.

- Comparison of current and optimized license distribution.

- Analysis and projection of license and maintenance costs

License transparency

- Mapping of customer contracts, available licenses and engines.

- Overview of SAP measurements and engine metrics

- Overview of the installed engines

- Display and comparison of SAP LAW Measurements

Authorizations

- Granular authorization concept with individual users and roles.

SLC-Internal Cost Distribution

- Assignment of license costs to cost centers and other organizational units.

Exhibit C
System Requirements

(*Please refer to Product Manual/s for latest requirements)

I.   Hardware Requirements

- 4 Cores CPU $\geq$ 2.0 GHz

- $\geq$ 8 GB RAM

- Disk $\geq$ 500 GB

II.   Standard architecture

It is recommended to have application and database server on the same dedicated machine for optimal performance. With smaller installations (< 10.000 managed devices) a database on a shared server, a shared webserver or a combination of both is technically possible. The Application database running in a virtualized environment is however currently not considered as a standard configuration and therefore is not covered by standard support services. This position is taken as it is not always possible to identify the required virtualization resources to ensure that performance of the SAM solution meets Customer requirements. However **technically the application database will operate within a virtualized infrastructure**. If a Customer requires the application to operate in a virtualized environment it is recommended to discuss the virtualization architecture and required resources for the specific case to ensure that the appropriate architecture is created.

Random Write Performance of the database IO Subsystem (with regard to IOPS) is crucial. These are the minimum required values:

- Random Read in MB/s (WinSAT) > 10 MB/s

- AverageIORate in ms/IO (WinSAT) < 2 ms

This can be best achieved by local storage with an IO optimized RAID. Configuration (RAID 10) and lack of virtualization layers gives best results. Network storage like SAN frequently does not reach these values.

III.   Operating System

- Microsoft Windows Server $\geq$ 2008

- Recent Linux distributions, provided they fulfil the software requirements

IV.   Software Requirements

A.   Linux

- Webserver

    - Apache 2.2.x or higher

- Environment

    - PHP

        - PHP 5.4 >= 5.4.4

        - PHP 5.6

    - Zend Guard Loader $\geq$ 7.0

    - Oracle/SUN Java Runtime Environment $\geq$ 1.6

- Database

    - MySQL $\geq$ 5.5

    - Oracle: 11g or 12c, see detailed Oracle server requirements

B.   Windows

- Webserver

    - IIS 7.0 or higher (corresponding to the Windows Server version)

- Environment
  - PHP
    - PHP >= 5.4.4
    - PHP 5.6
  - Zend Guard Loader ≥ 7.0
  - Oracle/SUN Java Runtime Environment ≥ 1.6
- Database
  - Microsoft SQL Server 2008 - 2014
  - MySQL ≥ 5.5
  - Oracle: 11g or 12c, see detailed Oracle server requirements

C.   Database Configuration

- Empty database with corresponding user, UTF-8
- Additional empty database with corresponding user for integration/test installation
- Direct SQL access to these databases (e.g. SQL Server Enterprise manager, sqlplus, PHPMyAdmin etc.)

D.   Web server Configuration

- Preconfigured webserver with independent virtual host.
  - Administrative rights for this installation. (On Windows: Local Administrator account or equivalent rights, on Linux: root account or equivalent rights)
- Storage location for upload and contract documents.

E.   Email Configuration

- Hostname of SMTP Relay
- Account details for SMTP authentication, if necessary

F.   Email Recipients

- Email address of designated recipient for SmartTrack notices & error messages

G.   Network Environment

1.   Required network connectivity application server

- external connections
  - incoming connections: HTTP: TCP/80 and/or HTTPS: TCP/443
  - outgoing connections: SMTP: TCP/25
  - outgoing connections: Database connect to other systems: Various ports
- internal connections
  - Database access, depending on database system
  - file system access for exchange directories: depending on OS

2.   Required network connectivity database server

- Internal connections

- Database access for application server, depending on database system

  -

Exhibit D

Maintenance and Support Services

Updates

Updates releases of the Software, typically provided to address errors, bugs, or minor functionality improvements, and which are designated by change in the number to the right of the decimal point (i.e. 2.xx)

Upgrades

Upgrades implement new functions of the Software, and are designated by changes in the number to the left of the decimal point (i.e. x.1)

Aspera's maintenance offering is designated at MaintenancePLUS, which includes:

- All updates, upgrades and new major releases;

- Telephone support (1st/2nd Level) in English from Monday – Friday (public holidays excluded), during service hours as specified in table Time zones for telephone support;

- 24/7 access to Aspera's Customer Web (Change Requests, Ticketing System, Online Roadmap, FAQ, Knowledgebase); and

- Invitation to participate in Aspera's annual User Day event.

MaintenancePLUS is purchased for twelve (12) month periods and can be cancelled in writing upon (3) three months prior written notice. If MaintenancePLUS is not cancelled it will be automatically renewed for subsequent twelve (12) month periods for so long as Aspera provides MaintenancePLUS. The fees for MaintenancePLUS are due in advance at the beginning and/or renewal of the annual maintenance and support period.

- The support services made available by MaintenancePLUS can only be called upon by Licensee's designated point of contact who has been identified to Aspera in writing.

- All support requests will be taken by Aspera either via telephone or through Apera's web-based service portal.

Time zones for telephone support

Time zones (regions)	Time zones (reference point)	Service hours (local)	Support fee
EMEA	Frankfurt/M., Germany, UTC +1h	9:00am – 5:00pm	Included in MaintenancePLUS fee
UK	London, England, UTC	9:00am – 5:00pm	Included in MaintenancePLUS fee
AMERICAS	New York, USA, UTC -5h	9:00am – 5:00pm	Included in MaintenancePLUS fee
APAC	Singapore, Singapore, UTC +8h	9:00am – 5:00pm	Charged separately

Service levels

All reported problems are categorized and processed as follows:

Incident / problem category	Definition	Response time in hours	Target Solution time
Critical	The entire system is blocked because of a bug.	0.75 hours	1 day
High	System operation is severely limited.	2 hours	2 days
Medium	Functionality is only limited in non-critical areas.	4 hours	5 days
Low	Operation is insignificantly limited. The problem does not directly degrade functionality.	8 hours	20 days