Using Machine Learning in Software License Discovery for Greater SAM Maturity
September 13, 2017

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Operations Bridge (Ops Bridge) SIG Leader

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Today's Speakers:

Bill Dyck
Product Manager
Configuration Management System
Micro Focus

Nick Rendall
Product Marketing Manager
Configuration Management System
Asset Management
Micro Focus

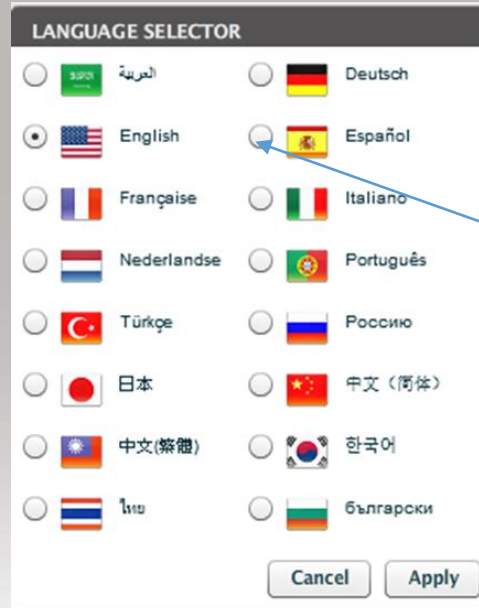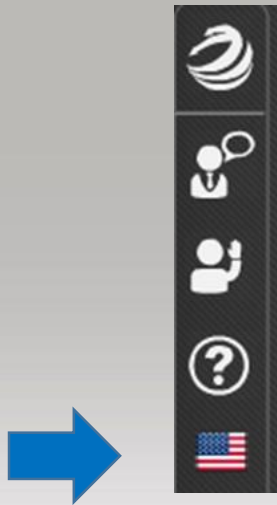YOUR INDEPENDENT HPE SOFTWARE USER COMMUNITY

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Q&A

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Ask

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Smart Software Analytics

Software Asset Management Overview and Demo

September 2017

Agenda

- Overview of Software Asset Management

- SAM Continuous Improvement

- Smart Software Analytics

- Smart Software Analytics Walk-Through

- Micro Focus Capabilities for Discovery

Software Asset Management Poll

- How does your enterprise handle software license recognition and teaching today?

  1. We don't do software recognition and teaching

  2. We rely completely on our vendor to provide us with current software signatures

  3. We rely on dedicated people ("Librarians") that manage our software recognition and teaching

  4. We rely on a mix of vendor-provided information and the output from our own "Librarians"

  5. Not sure

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Software Asset Management
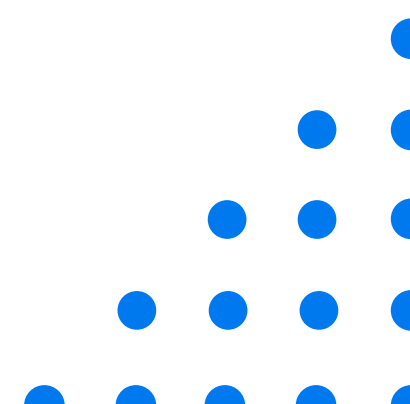
Asset Management is part of an eco system

Information owned by each system but is shared with the Asset Management tool

ERP
- Purchase orders
- Catalogues
- Costs

Service Management
- Calls
- Incidents
- Changes

Contract Management
- Terms and conditions
- Leasing contracts

Active Directory
- Employees
- Departments
- Locations
- Roles

Asset Management

TCO / IMAC processes / Assets Statuses / Software Compliance / Costs allocation / Contracts

Financial Management
- Budgets
- Depreciations schemes

CMS
- Inventory Discovery
- Business Services definitions and mapping

Inventory Management / Application mapping
- Network devices

Project Management
- Projects
- Labor costs

Industry ITAM Goals for FY16 and Beyond

IT Asset Management Goals

What are the top ITAM program goals for 2016 and beyond? Select all that apply.	
Goals	**Percent**
Improving software license compliance	77.7%
Increased inventory accuracy/control	71.9%
Improving processes within ITAM area of responsibility	63.0%
Improving coordination between departments, end users and others that impact the asset lifecycle	54.1%
Improve reporting and other deliverables for compliance/governance other than software licensing	52.4%
Increasing employee awareness and cooperation	50.3%
Expanding the software titles proactively managed for compliance	45.2%
Budget management/uncovering savings	44.2%
Increasing management awareness or buy-in	42.5%
Supporting IT service management	41.4%
Improving end-of-life processes	40.8%

Software License Optimization (SLO)

AM Browser

Smart Software Analytics

SACM

MICRO FOCUS

Software Asset Management (SAM)

Solution overview

Proactive software licence compliance

- Full understanding of the current license position
- Mitigate exposure in compliance audits

Avoid over/under purchasing

- Insight into software owned and used
- Re-harvest and reallocate unused software licenses
- Apply entitlements to reduce licenses

Reduce maintenance costs

- Cancel maintenance for unneeded licenses
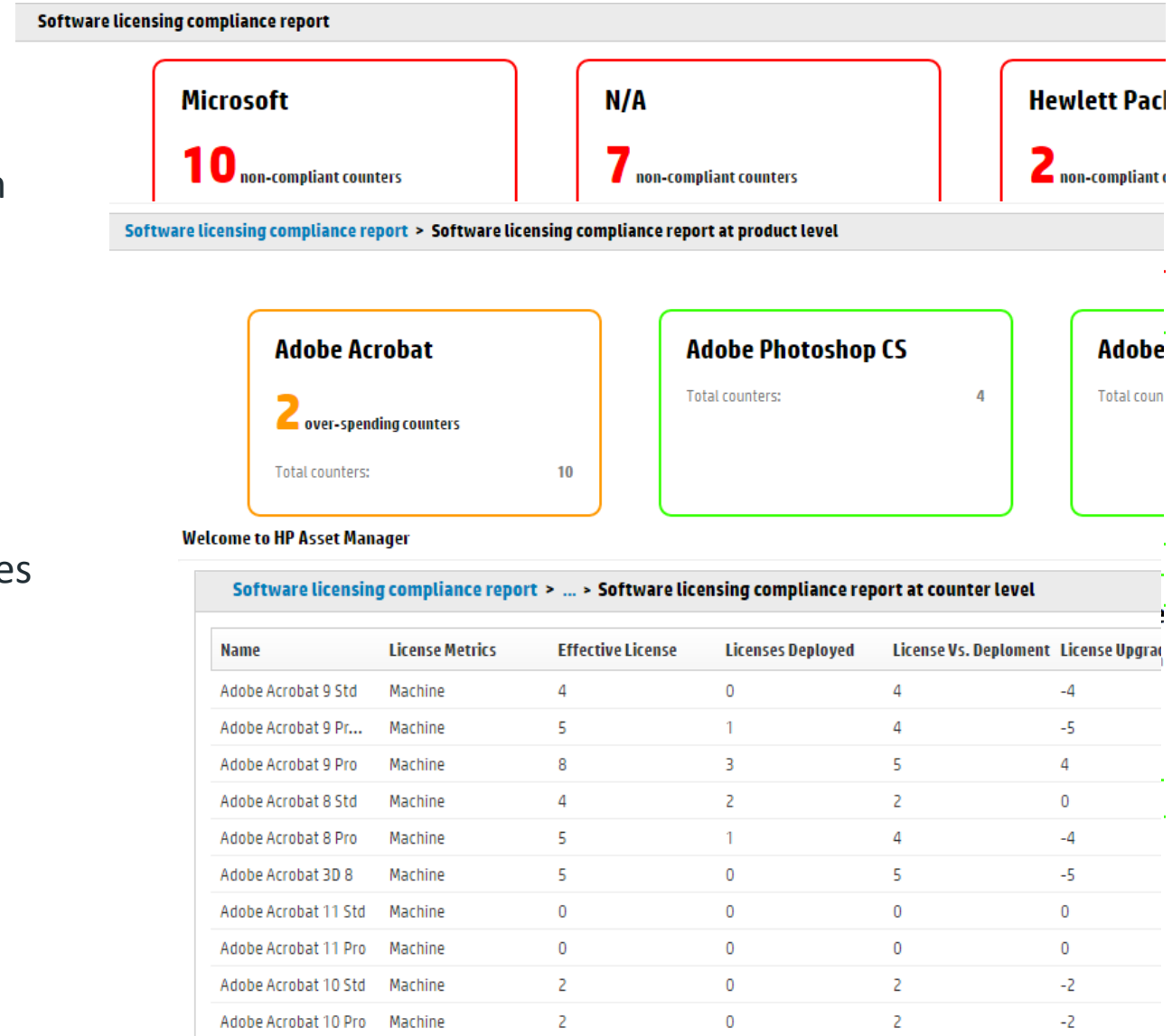
Examples of licensing models

Automated compliance for the many complex licensing models

Oracle

- Processor core factor table (Enterprise edition)
- Socket based (Standard, Standard One)
- Named user plus

Microsoft

- MS SQL server core license, user and device Cals
- Office, Desktop apps: Right of second use (on mobile device)
- Windows Server: Virtualized environment use rights

IBM

- Processor Value Unit (PVU) license consumption, sub-capacity virtualization rule

General rules across vendors

- upgrade/downgrade rights
- multiple versions usage
- maintenance renewal

Further supported vendors

Adobe, SAP, VMware, Autodesk, Symantec, BMC and HP

Microsoft — Microsoft Product Use Rights (PUR)

ORACLE — Oracle Core Factor table

IBM — IBM PVU Licensing

Processes for Software Asset Management

1. Understand Current State
- Deploy discovery tools
- Normalize data
- Gradually expand scope

2. Prove Compliance
- Deploy Counters
- Reconcile counters to entitlements
- Remove or purchase software

3. Establish Governance
- Convene cross-functional governance team
- Define DSL titles
- Create provisioning processes

4. Continuously Improve
- Track contracts
- Improve ITAM and procurement processes
- "Teach" discovery tools

Smart Software Analytics
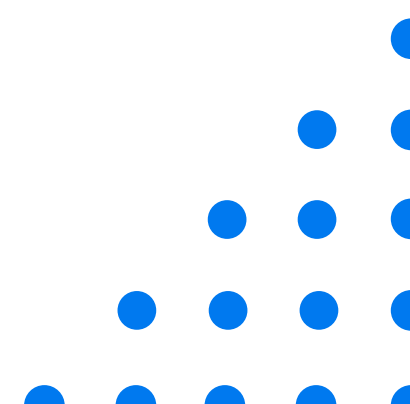
The need for Continuous Improvement

To be successful with your SAM solution requires that you're successful with the data collection, and the continuous improvement of that data collection.

01 **04** **03** **02**

Recognition Process

- Compares software inventory against predefined signatures to "recognize" software titles
- Very Automated
- Constrained to what is known
- High volumes of data and files

Recognition Process
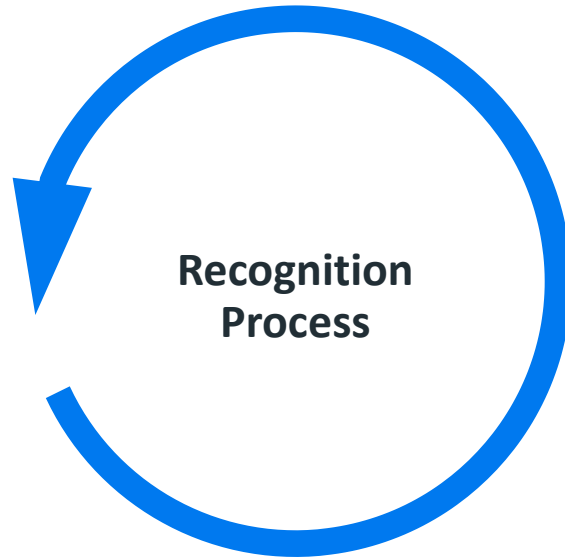
Teaching Process

Teaching Process

- Creates new signatures using discovered software inventory details
- Typically Very Manual
- Poorly connected to recognition process
- High knowledge requirements of software librarians

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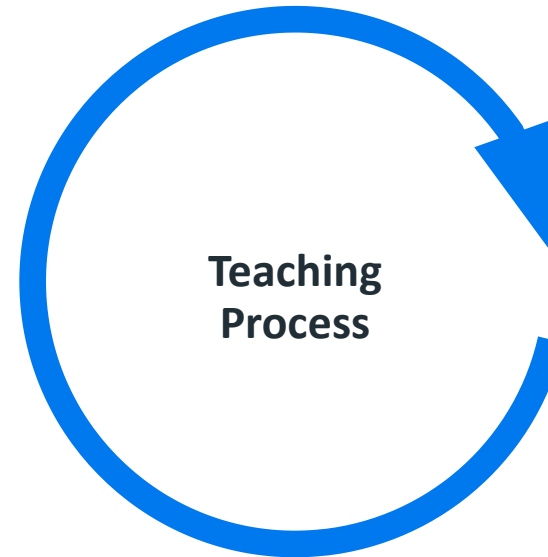
Smart Software Analytics (SSA)

Take a giant step forward in the Software Teaching & Recognition domain, automating the majority of the "teaching" processes necessary for software asset management continuous improvement
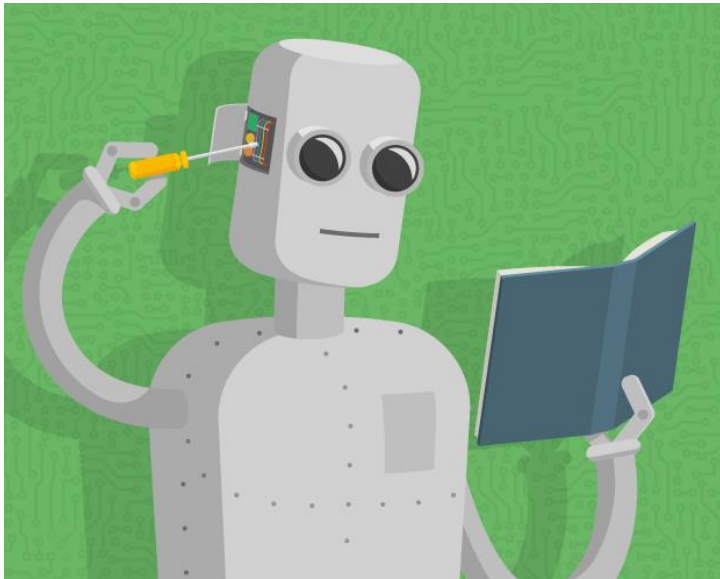
SSA introduces the big data concepts of **Machine Learning** and **Natural Language Processing** to software teaching, to simplify the process of adding recognition of new titles to your software inventory library

The role of IDOL and Machine Learning in SSA

"HPE IDOL can analyze whatever you throw at it."

Industry-leading unstructured search engine - 2017
Forrester

SSA takes advantage of the fact that software is typically exposed in a way that can be treated as an entity associated with meaningful text data such as publisher names, file names, directory names and install strings

IDOL knowledge flow

Scan Files   **Directory Classification**   **Entity Extraction**   **Indexing**   **Proposed Software Titles**
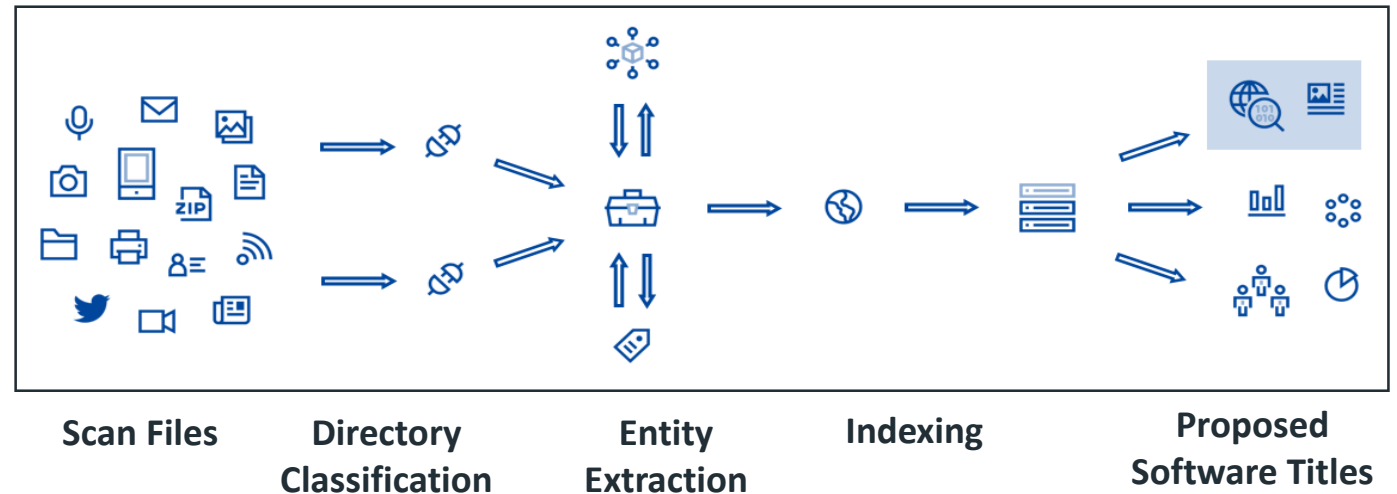
The initial Machine Language "training" was performed against directory classification data from ~7M software titles, to generate the SSA knowledge map currently used in UCMDB 10.33.

NLP analysis used DBpedia ontology to generate the necessary grammar and to normalize to the Micro Focus SAI library

Smart Software Analytics Combines and Automates
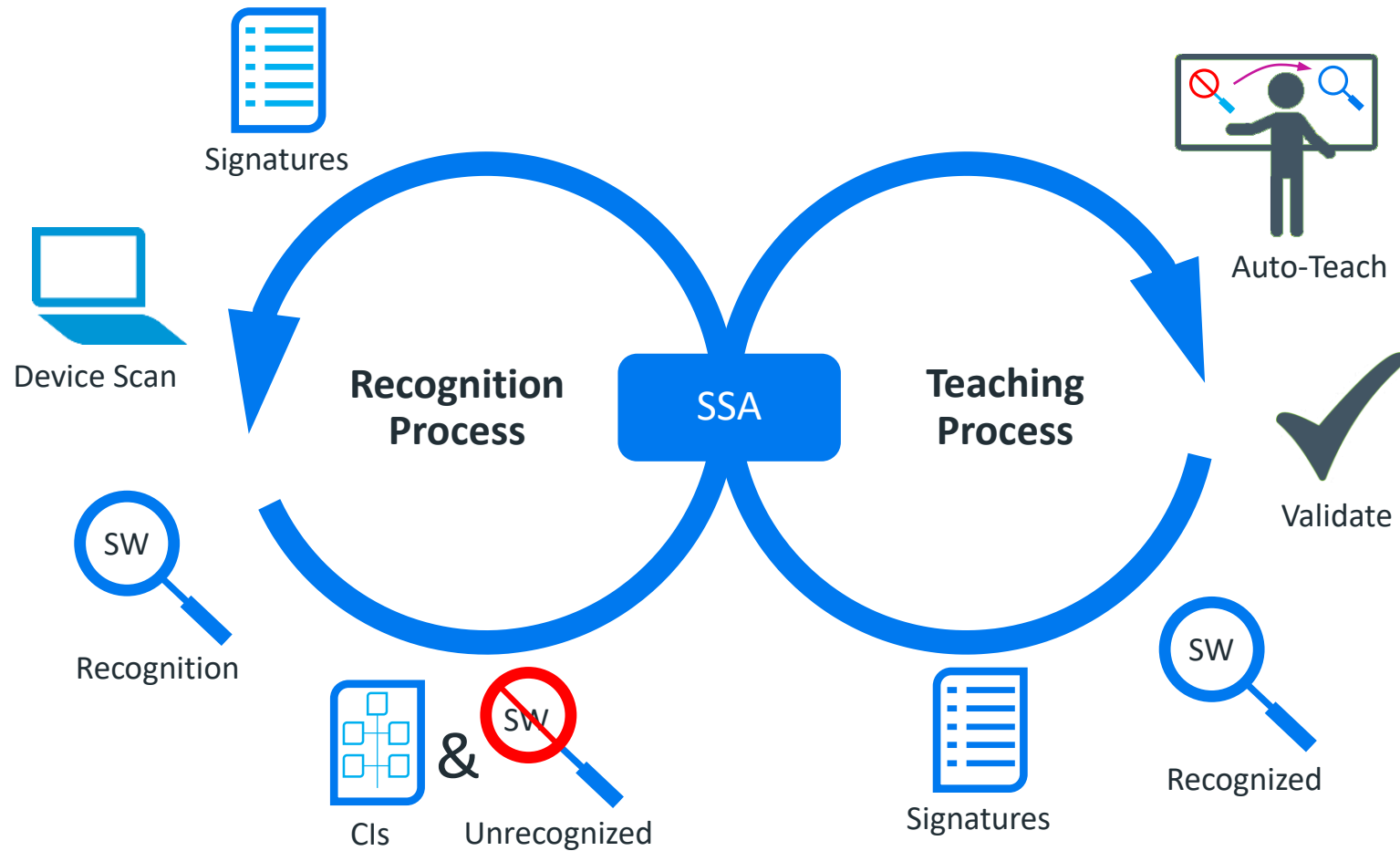
SSA Walk-Through
Logging into UCMDB Browser 4.14

SSA Walk-Through
Access UCMDB Home, and Smart Software Analytics

SSA Walk-Through
Configure Smart Software Analytics and Save

SSA Walk-Through
Smart Software Analytics in Ready mode

SSA Walk-Through
Scan files (*.xsf) Uploaded to SSA
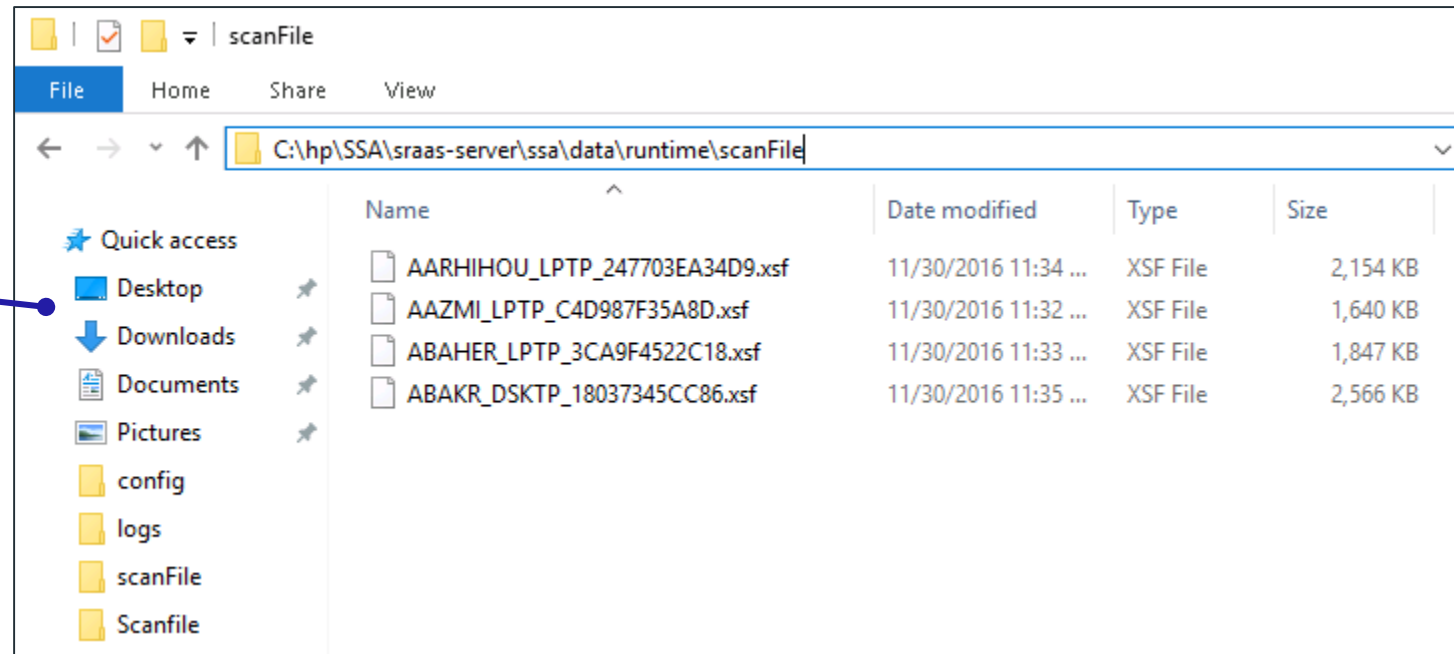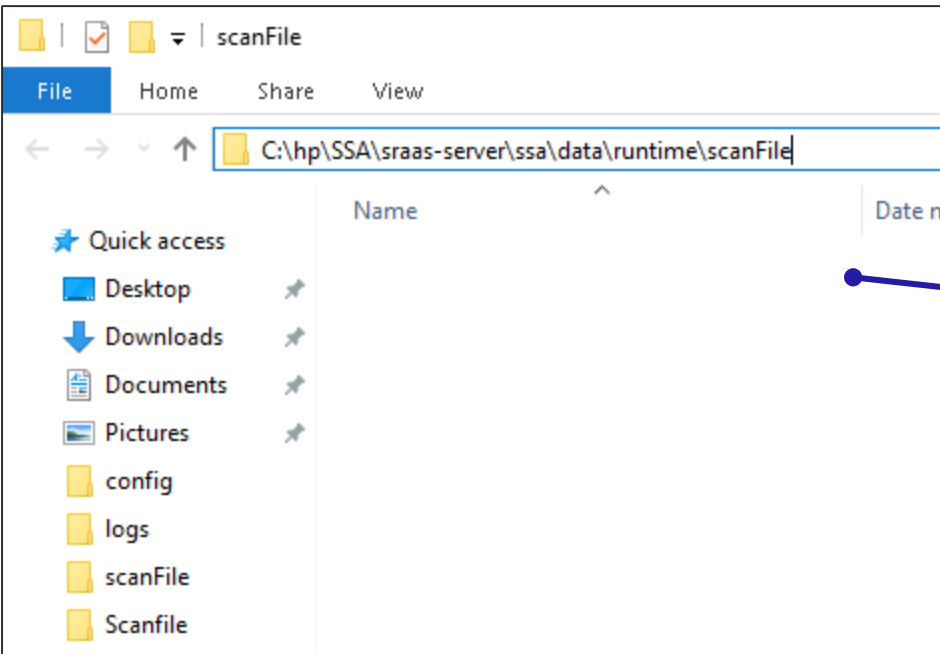
SSA is configured to collect scan files from each probe on a schedule you configure
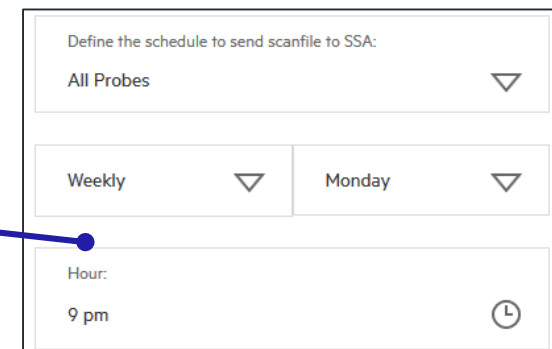
SSA Walk-Through
Teaching Process

Load existing SAI for baseline

Process Scan Files versus known software titles

Load Scan Files

Identify New Software packages

Identify New Software Rules

```
INFO  | jvm 1  | 2017/08/24 03:52:00 |  Start teaching...
INFO  | jvm 1  | 2017/08/24 03:52:00 |  Starting to process SAI: BaseUnixOS.zsai
INFO  | jvm 1  | 2017/08/24 03:52:40 |  Starting to process SAI: French.zsai
INFO  | jvm 1  | 2017/08/24 03:52:43 |  Starting to process SAI: German.zsai
INFO  | jvm 1  | 2017/08/24 03:52:46 |  Starting to process SAI: Legacy.zsai
INFO  | jvm 1  | 2017/08/24 03:52:49 |  Starting to process SAI: Mac.zsai
INFO  | jvm 1  | 2017/08/24 03:52:50 |  Starting to process SAI: Master.zsai
INFO  | jvm 1  | 2017/08/24 03:53:31 |  Starting to process SAI: Unix.zsai
INFO  | jvm 1  | 2017/08/24 03:54:04 |  1 files processed,    3 files remaining
INFO  | jvm 1  | 2017/08/24 03:54:05 |  2 files processed,    2 files remaining
INFO  | jvm 1  | 2017/08/24 03:54:07 |  3 files processed,    1 files remaining
INFO  | jvm 1  | 2017/08/24 03:54:09 |  4 files processed,    0 files remaining
```

```
INFO  | jvm 1  | 2017/08/24 03:54:13 |  Starting to process scan file: AARHIHOU_LPTP_247703EA34
INFO  | jvm 1  | 2017/08/24 03:54:15 |  Starting to process scan file: AAZMI_LPTP_C4D987F35A8D.
INFO  | jvm 1  | 2017/08/24 03:54:16 |  Starting to process scan file: ABAHER_LPTP_3CA9F4522C18
INFO  | jvm 1  | 2017/08/24 03:54:17 |  Starting to process scan file: ABAKR_DSKTP_18037345CC86
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files\Android\Android Studio\bin to taught
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files\Andy to taught versions from scan fil
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files\IDT to taught versions from scan file
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files\NVIDIA Corporation\nview to taught ve
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files (x86)\AutoIt3 to taught versions from
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files (x86)\GNU\WinCvs 2.0 to taught versio
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files (x86)\IQ Option to taught versions fr
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files (x86)\ISO to USB to taught versions f
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files (x86)\JDownloader to taught versions
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files (x86)\MacroRecorder to taught version
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files (x86)\MouseRecorder to taught version
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files (x86)\NCH Software\ExpressBurn to tau
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files (x86)\NCH Software\VideoPad to taught
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files (x86)\Popcorn Time to taught versions
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files (x86)\Unified Remote to taught versio
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files (x86)\Dell Webcam\Dell Webcam Central
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files (x86)\Malwarebytes' Anti-Malware to t
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files (x86)\NoMachine Enterprise Client\bin
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files (x86)\TkDiff to taught versions from
INFO  | jvm 1  | 2017/08/24 03:54:18 |  Add \Program Files\DellTPad to taught versions from scan
INFO  | jvm 1  | 2017/08/24 03:54:19 |  Add \Program Files (x86)\MiKTeX 2.9\miktex\bin to taught
INFO  | jvm 1  | 2017/08/24 03:54:19 |  Add \Program Files (x86)\Texmaker to taught versions fro
INFO  | jvm 1  | 2017/08/24 03:54:19 |  Total number of packages:46
INFO  | jvm 1  | 2017/08/24 03:54:19 |  Add Galerie de photos to taught rules.
INFO  | jvm 1  | 2017/08/24 03:54:19 |  Add Adobe Reader X (10.1.16) to taught rules.
INFO  | jvm 1  | 2017/08/24 03:54:19 |  Add Microsoft .NET Framework 4.5.1 (FRA) to taught rules
INFO  | jvm 1  | 2017/08/24 03:54:19 |  Add Adobe Reader XI (11.0.18) to taught rules.
INFO  | jvm 1  | 2017/08/24 03:54:19 |  Add NI Update Service 2.1 to taught rules.
INFO  | jvm 1  | 2017/08/24 03:54:19 |  Add SystemVision Experiment Manager - 5.10 Standalone to
INFO  | jvm 1  | 2017/08/24 03:54:19 |  Add NI MAX Remote Configuration 64-bit Installer 5.3 to
INFO  | jvm 1  | 2017/08/24 03:54:20 |  Auto teach results: 7 rules, and 22 versions generated
```

SSA Walk-Through
Initial Teaching Results

SSA Walk-Through
Selecting Packages to Edit

SSA Walk-Through
Selecting Packages to Edit

SSA Walk-Through
Adding more packages to existing SAI files
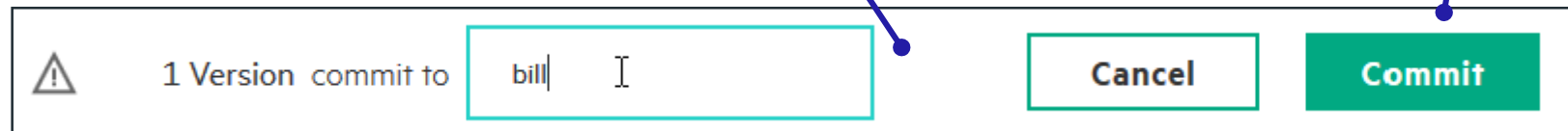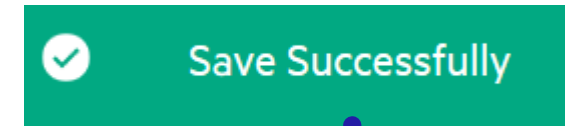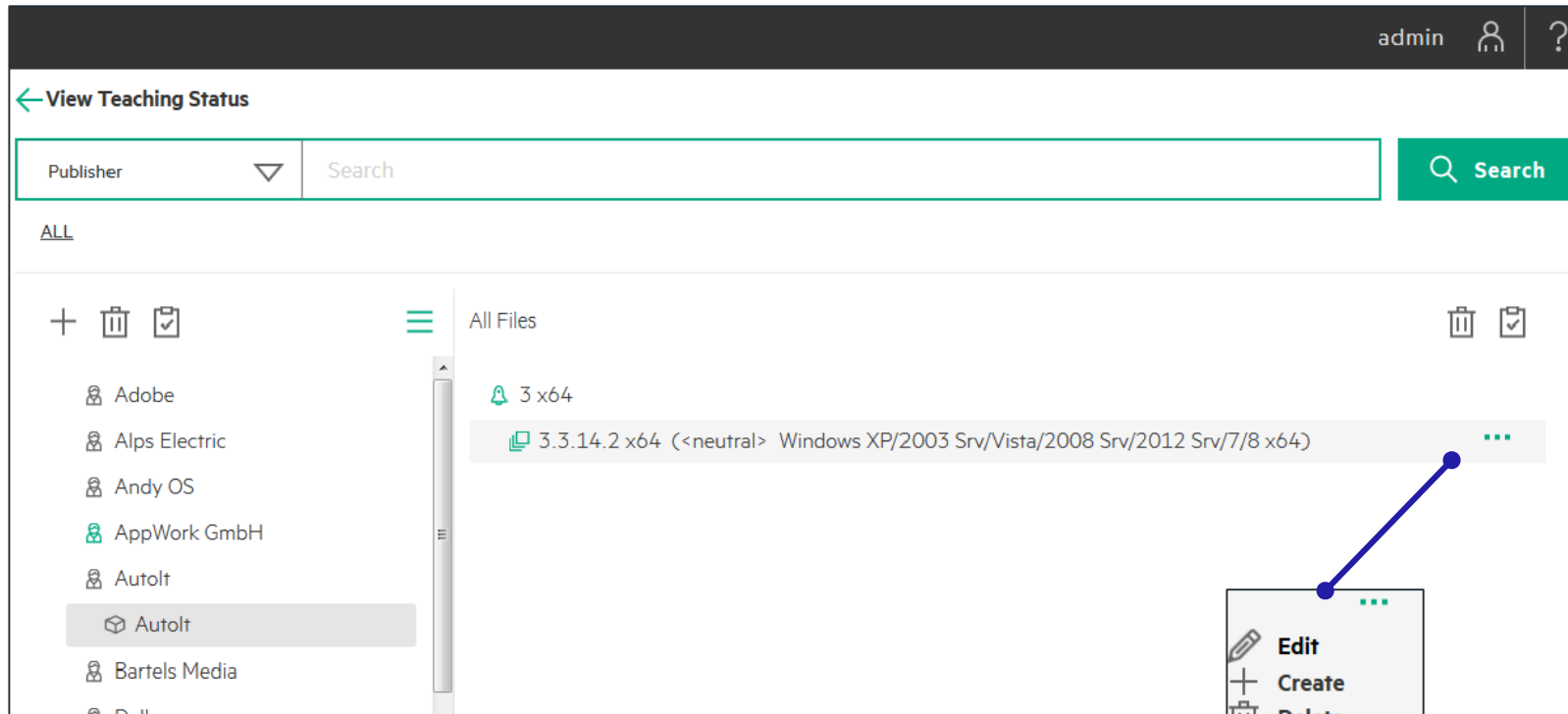
SSA Walk-Through
Final SAI package ready to go

SSA Walk-Through
Saving SAI and Pushing to UCMDB

Software Asset Management
Before and After SSA

Probe

Probe

Scan File

Scan File

SSA
Automated
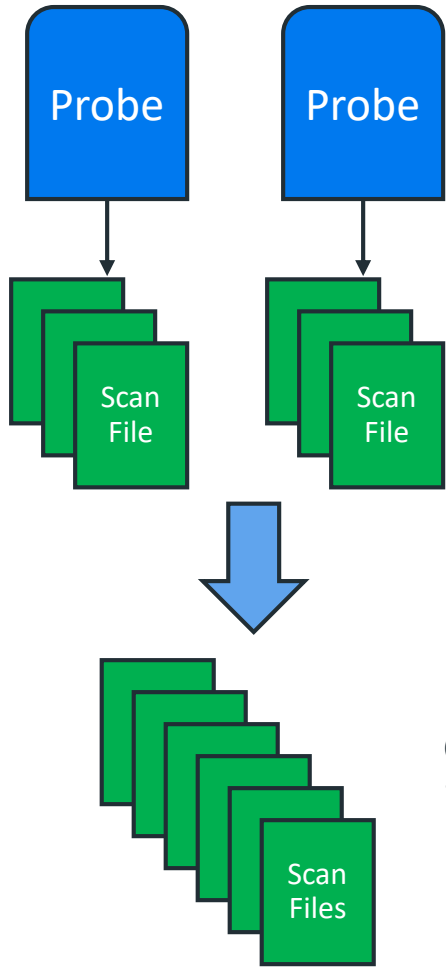
Log into each Probe to find the scan files it had created

Scan Files

SSA
Automated

Gather all the scan files into a single location
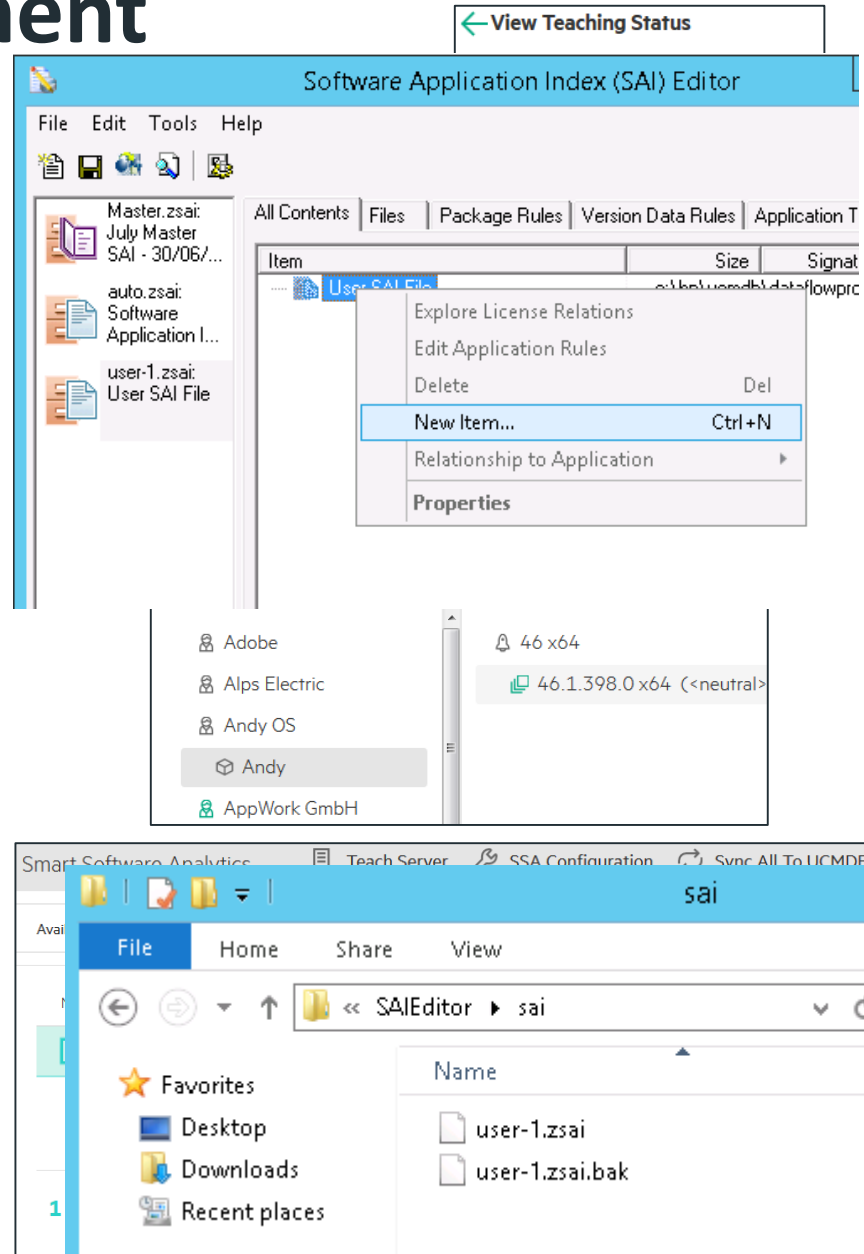
Manually enter the characteristics of each new software title, so UCMDB knows how to recognize it

SSA
Automated

Review and approve the teaching results

NEW

SSA
Automated

Save the new SAI signature and move it to UCMDB

33

Customer Results using SSA

A large telecom customer participated in SSA Beta, with 204 new titles to teach

SSA

Individual productivity increased by 60x

Expected to be done in 56 weeks

Response time to new software signatures improved by 8x

Customer reached compliant state in 2 weeks
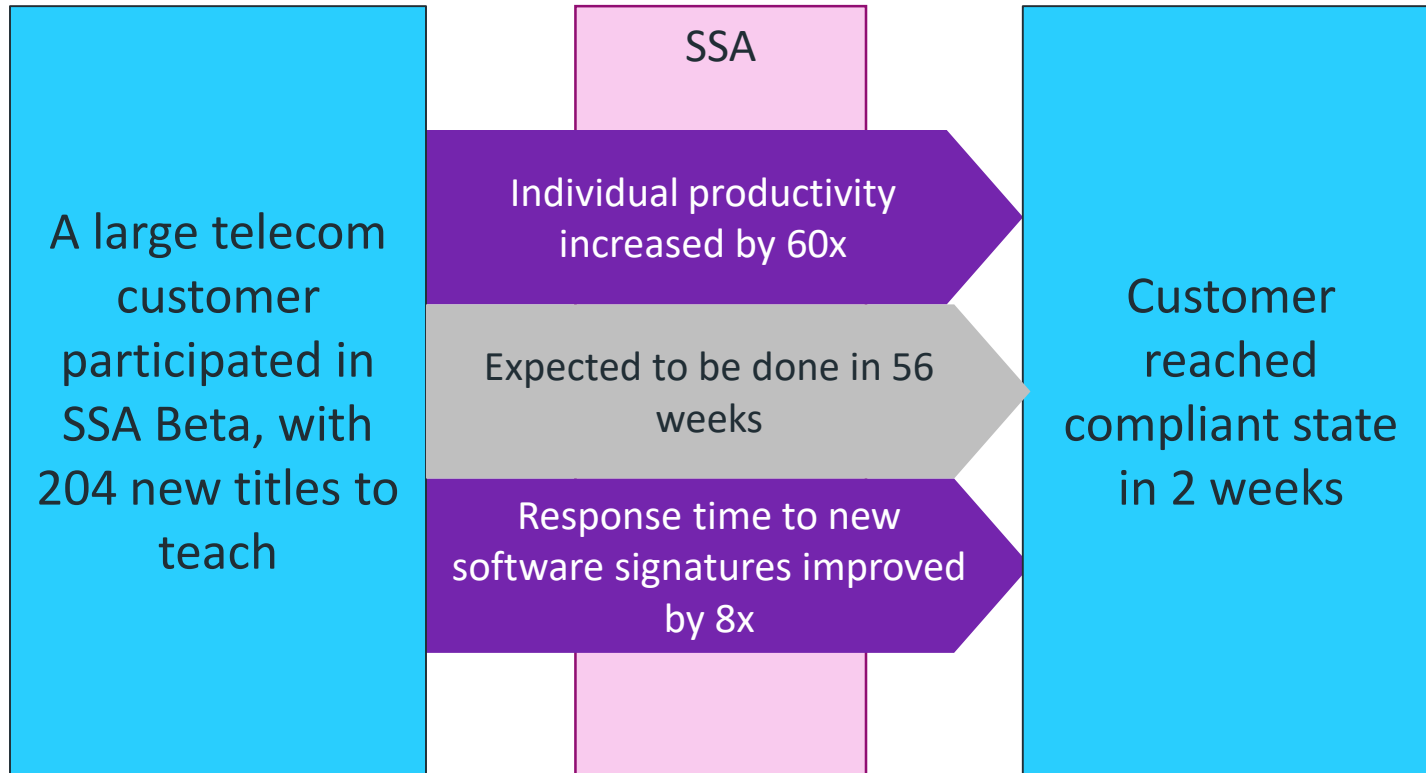
Improved Response
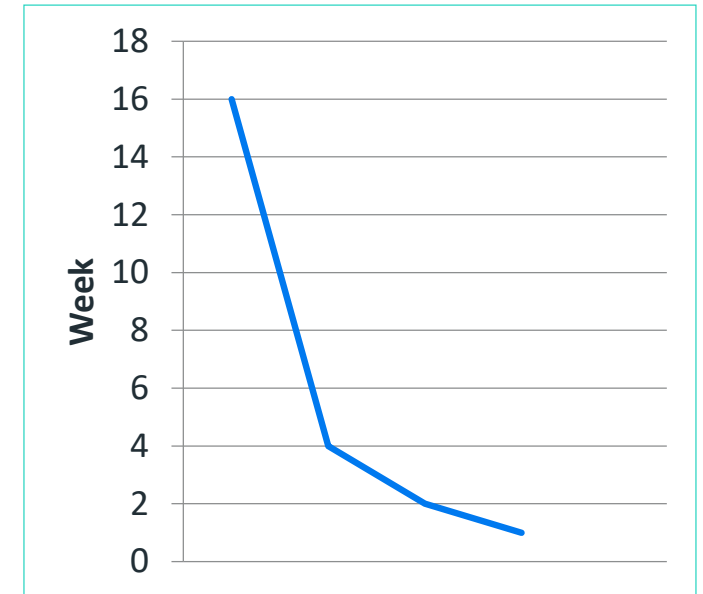
Auto-teaching reduced the time required to analyze and develop new software signatures

Micro Focus

Micro Focus
Configuration Management
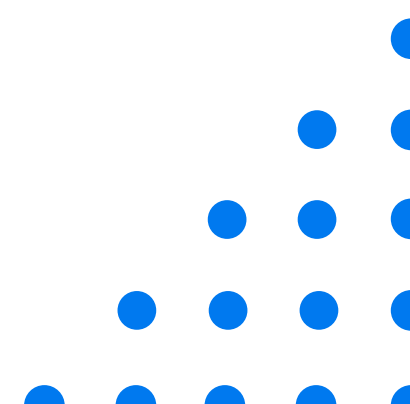
Configuration Management System (CMS)

Industry's best combination of bottom up and top down discovery and modeling

Intuitive web browser interface
Easy access to all CMS data

Single tool
Federated CMDB, discovery, inventory and
dependency mapping

Automated Discovery
Cloud and on premise
Top-down and bottoms-up
Agent-based, agent-less, hybrid, and passive

Automated service modeling
Easy, fast dependency modeling to a top-down
model of a business service

Common platform integration
across ITOM tools
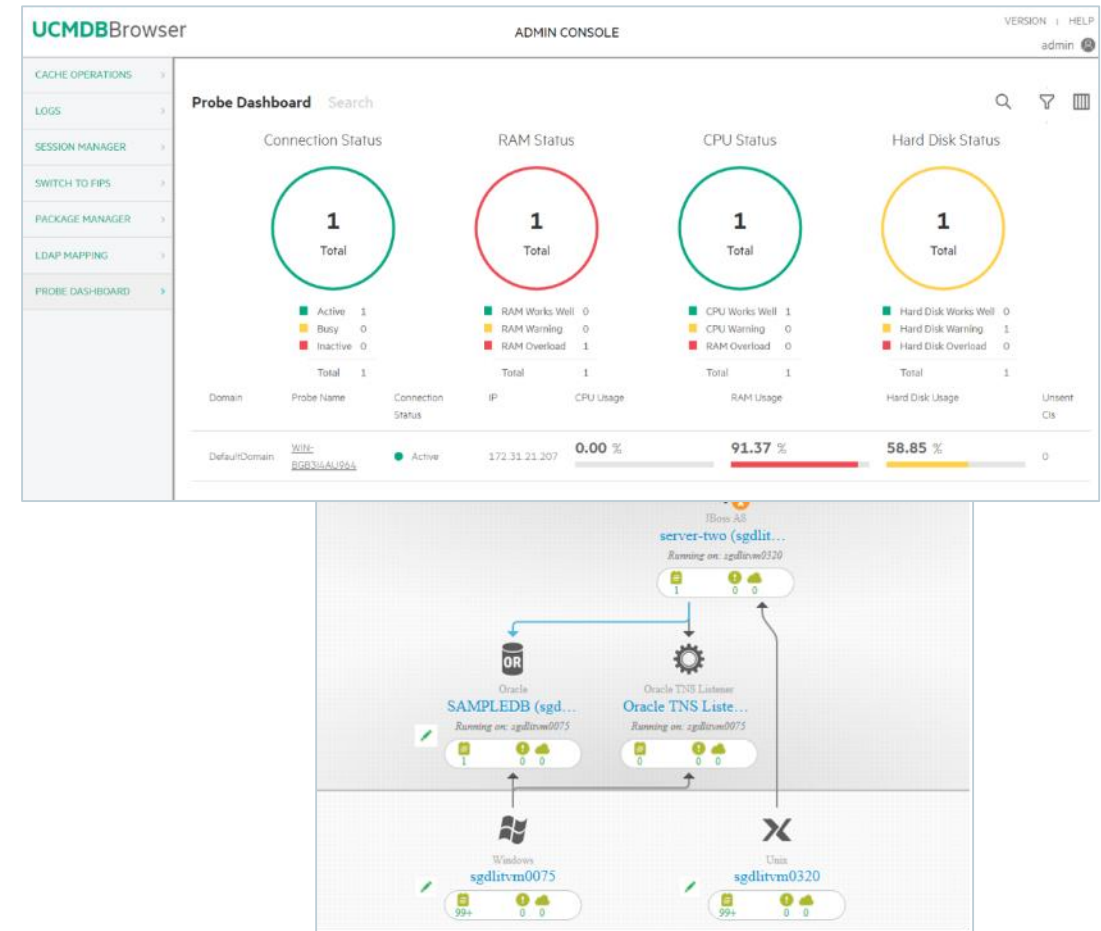
Universal Discovery Capabilities

Oracle LMS Audit

Discover: Oracle LMS data – DB details
(edition, version), installed/in-use options,
management packs, CPU and core details

Database Discovery

Discover: Oracle database, database resources
(table spaces, snapshots, DB files, DB Users, RAC)

Middleware Discovery

Discover: AD, Exchange, SharePoint, SAP, Siebel
GlassFish, Jboss, WebLogic, Oracle iAS, WebSphere, TIBCO,
IIS, Apache, Tomcat, Cisco Prime, Cisco UCS

Virtualization Discovery

Discover: Virtualization topology
(Host OS, Hypervisor, Virtual Machines, clusters)

Inventory Discovery

Discover: Host resources – CPU, File systems,
Installed/Running Software, IP Service Endpoints,
Processes, Services

Infrastructure Discovery

Discover: IP Addresses, Servers, Storage, Networks, IP Subnets
Protocols: WMI, SSH, Telnet, NTCMD, PowerShell, UDA

Diagram

Version, Edition, Hostname | Users, Sessions

LMS Reports

Options, Packs | CPU, Cores

RAC

OR

Oracle Database

DB Snapshot
DB User
Table Space
DB Resources

Tomcat
Tomcat Service
Web Layer

WebLogic
J2EE Cluster
Middleware

VMware Datacenter
VMware Cluster
Virtualization

Node

Running Software | Process
Interface | Installed Software
File System | CPU
Host Resources

Storage Array

IP Subnet
IP Address
Switch

Universal Discovery for Oracle Licensing

High-level Architecture

UCMDB

Universal Discovery

Oracle LMS Data Collection

Oracle Databases

Export

Push

Exported Reports

LMS_OVERVIEW

LMS_V$SESSION

LMS_DETAIL

LMS_V$LICENSE

LMS_OPTIONS

LMS_DBA_USERS

Asset Manager

ORACLE®
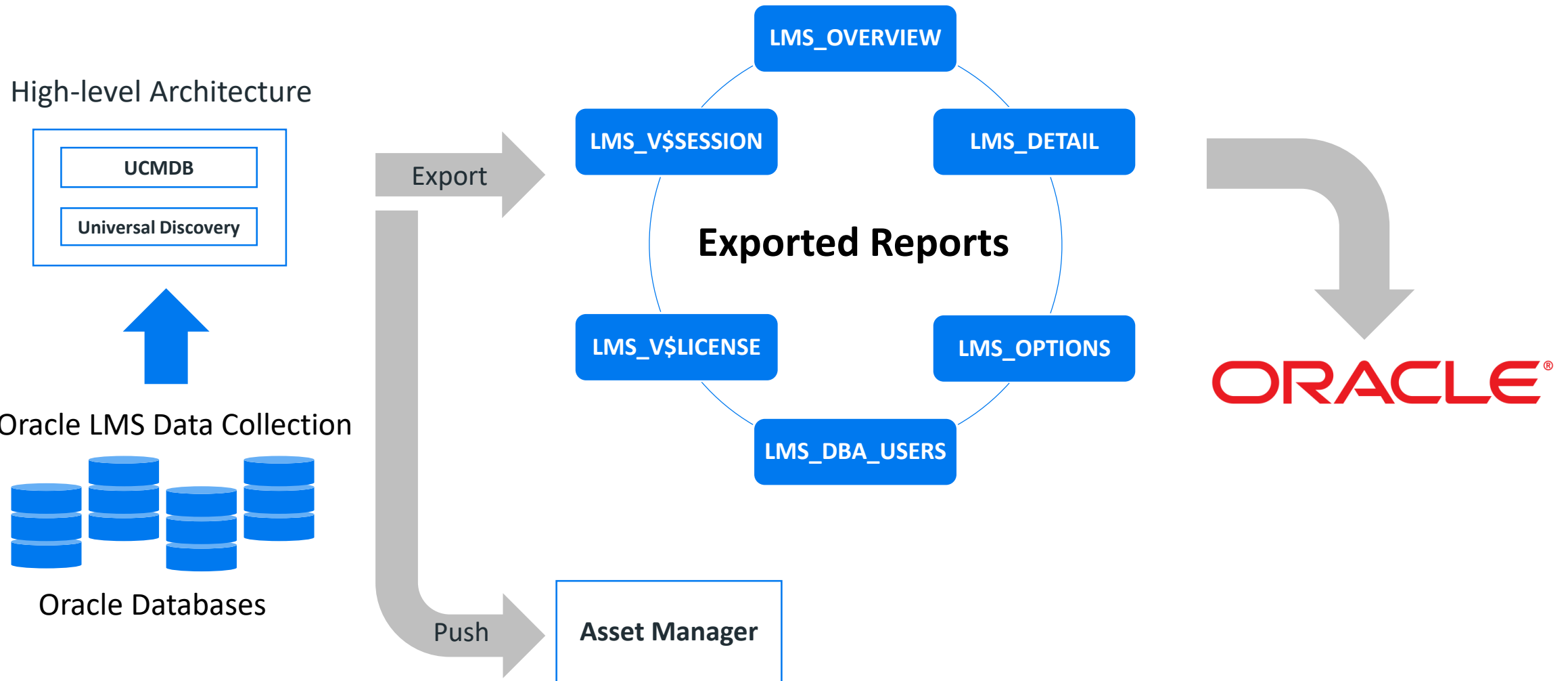
Microsoft Workspace Universal Inventory (WUI)

- WUI is a program led by Microsoft to allow its partners to focus on value delivery, while Microsoft focuses on license validation

- Upon initial release in Fall, 2017, Micro Focus will support the direct integration between Microsoft WUI and UCMDB, allowing UD to push discovered Microsoft software inventory data into WUI.

BEFORE

Micro Focus

Customer Inventory → Licensing Position → Value Delivery

Microsoft WUI

Micro Focus

Customer Inventory — Value Delivery

Microsoft

Licensing Position
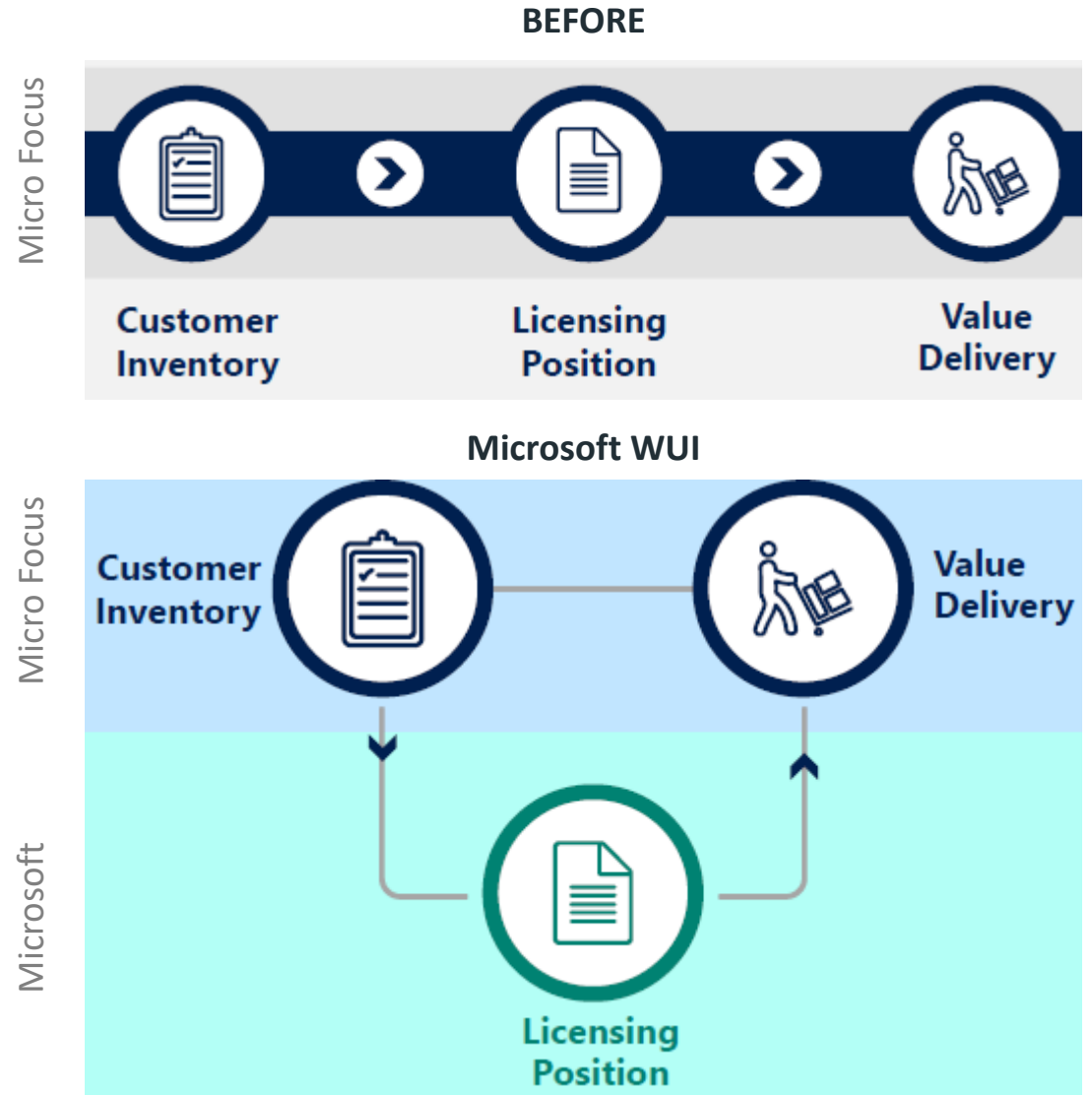
Upcoming Vivit Webinars

September 19, 2017
Introducing the Network Operations Management Suite from Micro Focus
9:00 - 10:00 AM PDT (Los Angeles), 12:00 - 1:00 PM EDT (New York), 18:00 - 19:00 CET (Frankfurt)
http://www.vivit-worldwide.org/events/EventDetails.aspx?id=1003504&group=

September 21, 2017
Accelerate the BusDevOps Cycle with Storyteller and ALM
8:00 - 9:00 AM PDT (Los Angeles), 11:00 AM - 12:00 PM EDT (New York), 17:00 - 18:00 CET (Frankfurt)
http://www.vivit-worldwide.org/events/EventDetails.aspx?id=998630&group=

September 27, 2017
What's New in ALM - Enhancing your team's efforts to deliver amazing Apps
9:00 - 10:00 AM PDT (Los Angeles), 12:00 - 1:00 PM EDT (New York), 18:00 - 19:00 CET (Frankfurt)
http://www.vivit-worldwide.org/events/EventDetails.aspx?id=1003058&group=

October 11, 2017
Why Boeing, Vodafone, SPAR and many others love Operations Bridge and What's New
9:00 - 10:00 AM EDT (New York), 15:00 - 16:00 CET (Frankfurt), 18:30 - 19:30 IST (New Delhi)
http://www.vivit-worldwide.org/events/EventDetails.aspx?id=1005884&group=

YOUR INDEPENDENT HPE SOFTWARE USER COMMUNITY

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14

locations

4

weeks

REGION	LOCATION	DATE
EMEA	London	September 7
EMEA	Paris	October 10
EMEA	Frankfurt	October 12
EMEA	Dubai & Abu Dahbi	September 18-20
AMS	Washington DC- Protect	September 11
AMS	New York- ADM Forum	September 14
AMS	Ottawa Government Summit	September 20
AMS	Dallas	September 26
AMS	Toronto	September 27
AMS	New York Roundtable	September 28
APJ	Sydney	September 11
APJ	Singapore	September 13
APJ	Tokyo	October 3
APJ	Mumbai	October 5

Thank you

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Thank You

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