



# License Assessment for HP OpenView

Applying OLA Tools for Compliance Checking

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# Overview

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- ▶ The issue of OpenView licensing
- ▶ Goals when creating the OLA tools
- ▶ Architecture and methods
- ▶ Usage and analysis
  - ◆ Node determination and instrumentation
  - ◆ Discovery and collection
  - ◆ Tiering and consolidation
  - ◆ Reporting
- ▶ Caveats



# OpenView Licenses

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- ▶ Management server licenses
- ▶ Managed node licenses
- ▶ Performance classification (Tiering Matrix)
- ▶ Rules and exceptions
- ▶ License monitoring
- ▶ Compliance reports



# Goals and Purpose

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- ▶ Report licenses installed for OpenView Operations, Performance, Glance, SPIs, NNM
- ▶ Discover deployed agents and SPIs in OVOU or OVOW environments
- ▶ Collect information about OVP agents and Glance software in the management domain
- ▶ Show lists to determine gaps in licensing, where possible
- ▶ Be precise:
  - ◆ Determine tiering classification for each system discovered
  - ◆ Apply this to installed OVO and OVP agents, Glance and SPIs
- ▶ Create nice detail and summary reports
- ▶ Create ad-hoc reports or run repeatedly in the background



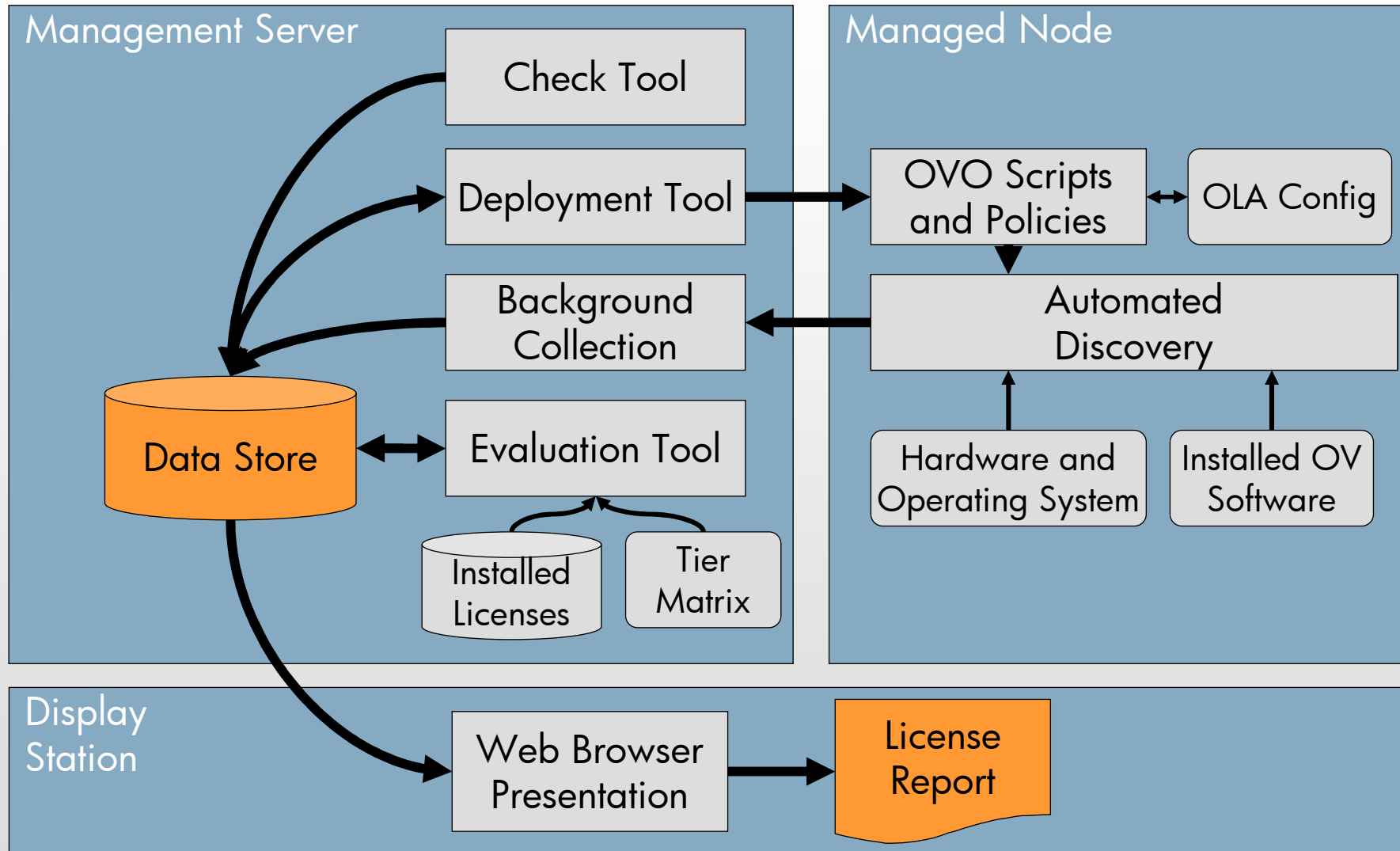
# Non-Goals and Restrictions

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- ▶ Do not demand 100% discovery in managed environment
  - ◆ Request or response may fail for some nodes
  - ◆ Not all hardware models may be known for tier determination
- ▶ Focus on main platforms only
  - ◆ HP-UX, AIX, Solaris, Windows, Linux
- ▶ Act in ONE management domain only
  - ◆ Single management server only, no MoM
- ▶ No virtualization or logical partitioning
  - ◆ As of today, no automatic discovery can be provided



# Overall Architecture



# Technology and Methods

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- ▶ **OVO Node Bank determines the set of nodes to access**
  - ◆ Only nodes with OVO agents are selected
  - ◆ OLA uses a snapshot of the managed node (can be updated)
- ▶ **Simply use OVO policies and instrumentation**
  - ◆ No installation of agents or additional software necessary
  - ◆ Minimal impact upon managed nodes
- ▶ **Use OVO message technology for collection**
  - ◆ No separate communication, use what we have anyway
- ▶ **Automatic operation possible on daily/weekly/monthly basis**
- ▶ **Postprocessing of collected data is easy (CSV text files)**
- ▶ **Full transparency provided – it is all written in Perl**



# OVO Configuration Items

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- ▶ Tools in group "OLA Tools"
  - ◆ OLA Check
  - ◆ OLA Deploy
  - ◆ OLA Evaluate
- ▶ Message Group: OLA
- ▶ Policies
  - ◆ Group OLA-Discovery (schedule OLA\_exec, interface OLA\_opcmsg) for the MgdNodes
  - ◆ Group OLA-Collection (schedules OLA\_collect, OLA\_eval) for the MgmtSvr
- ▶ Instrumentation
  - ◆ Just one Perl script for the managed nodes
  - ◆ A few Perl scripts on the management server

# Local SPI Adaptations

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- ▶ Customer may have installed / deployed SPIs with different naming convention (policies, scripts)
- ▶ Determine local names and adapt `ola_spi.cfg`
- ▶ Any number of local names can be added
- ▶ Example:

```
OVOU;DBSPIOracle;DBSPI-Ora-1d;Prod-Ora-1d;Test-O1
```

Default entry

Local SPI policies



# Distinguish the Operating Modes

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## Automatic Collection

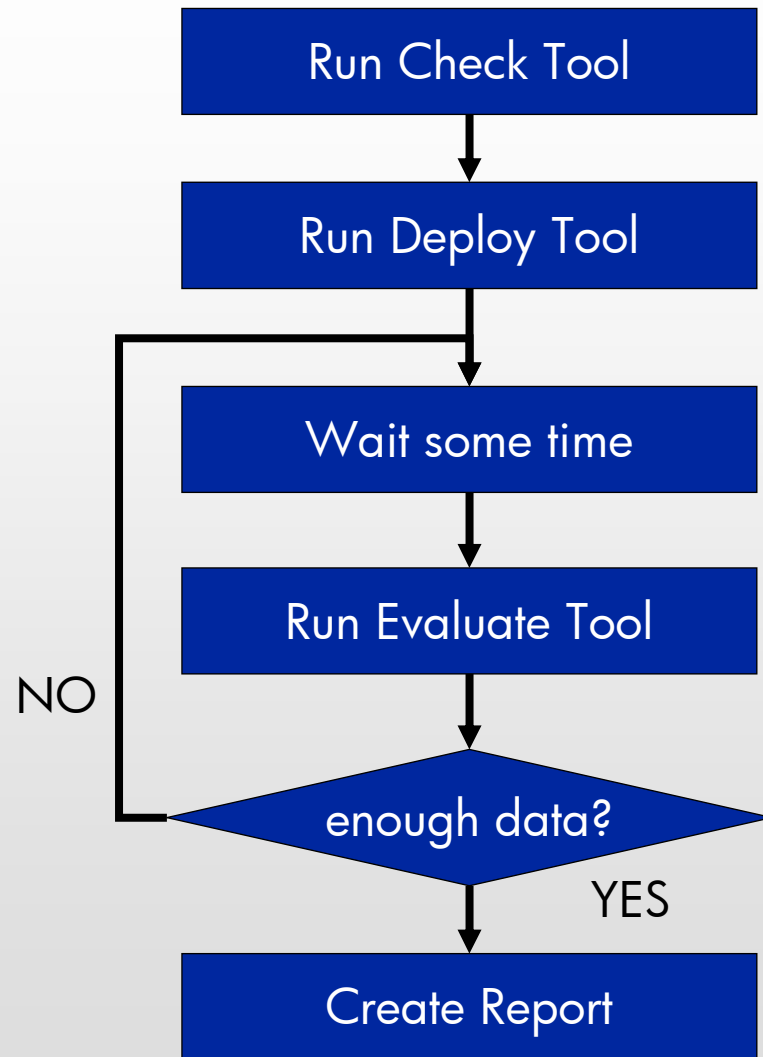
- ▶ Repeated discovery (daily, weekly, monthly)
- ▶ Collection guided by policies on the management server
- ▶ Collection rate determined by configuration file setting
- ▶ Use the same set of nodes each time until new deployment takes place

## Immediate Collection

- ▶ Ad-hoc discovery
- ▶ Selected when doing the deployment
- ▶ Can be applied in addition to the automatic collection, but they should not execute at the same time
- ▶ Triggered collection on the management server



# Steps in the immediate Mode



Check nodes for status and reachability

Assign and deploy OLA instrumentation;  
start discovery within the next hour

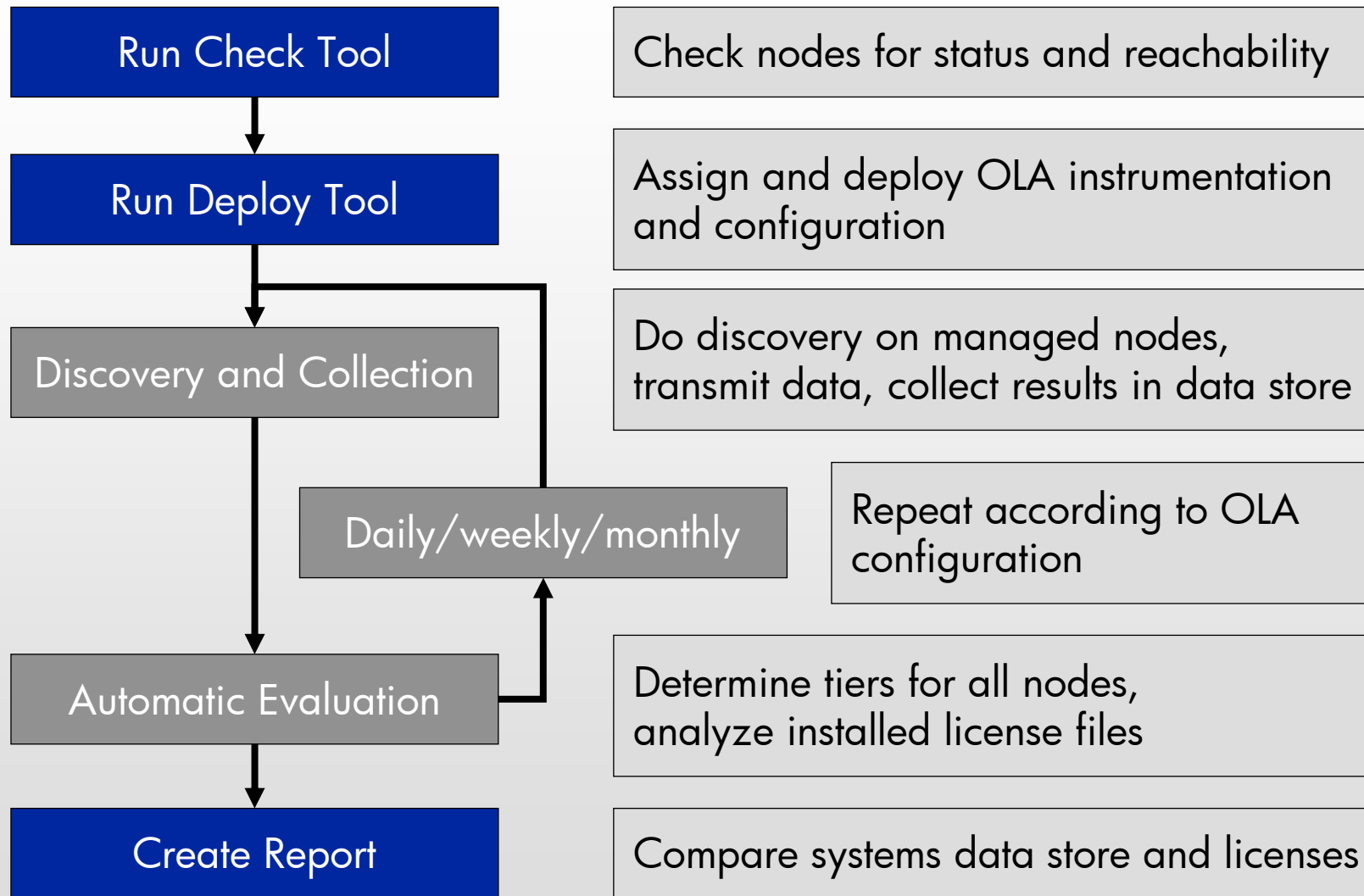
Do discovery on managed nodes,  
transmit data, collect results in data store

Compare node lists:  
deployed-to vs. reported-by

Determine tiers for all nodes,  
analyze installed license files

Compare systems data store and licenses

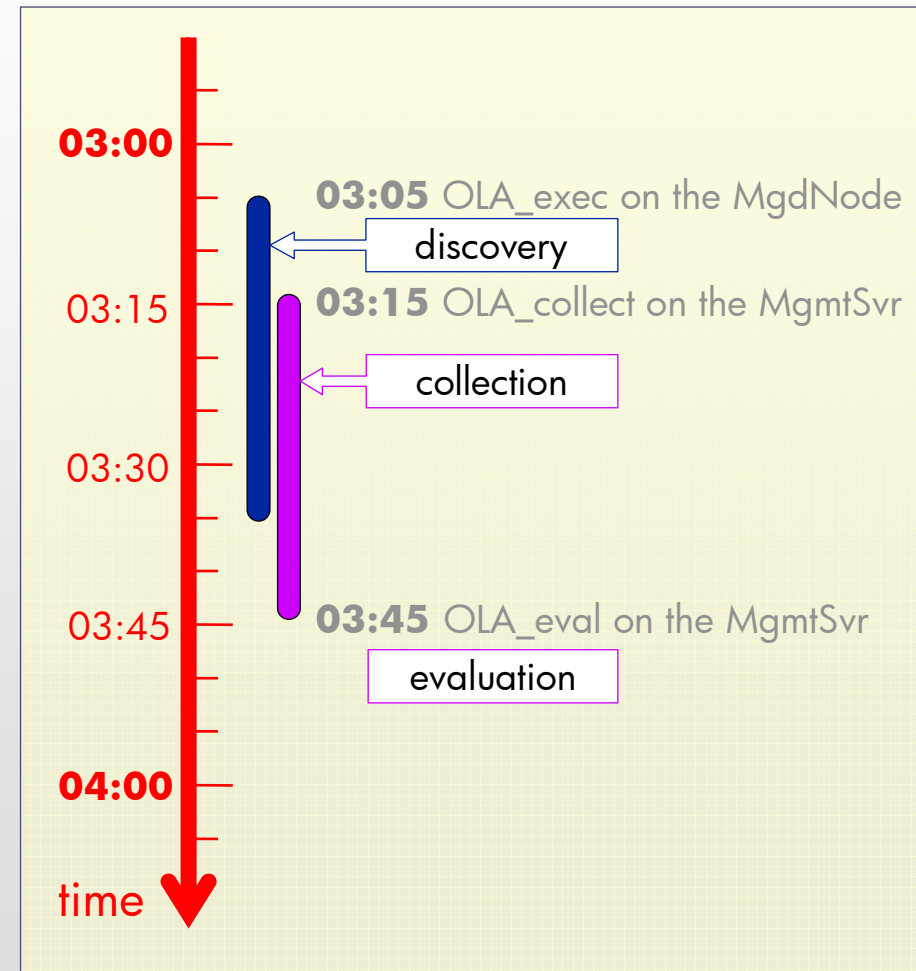
# Steps in the automatic Mode



# Applying the automatic Mode

- ▶ The schedule monitors on the **MgdNodes** and the **MgmtSvr** must fit to each other
- ▶ Adaptation should make sure that the sequence is preserved
- ▶ Disable the **OLA\_collect** and **OLA\_eval** policies on the **MgmtSvr** when running immediate mode and make sure they are silent

Standard setting:



# Phase 1: Check the Nodes

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- ▶ **OLA Check** is an interactive Perl script executed on the MgmtSvr
- ▶ Run it from **OVO GUI** or from a terminal window

```
cd /opt/OV/bin/OLA  
./perl ola_checker.pl [--trace]
```

- ▶ Can be executed whenever changes to the node bank have been performed (new nodes, dropped nodes)
- ▶ Discard unsupported nodes, identify unreachable nodes
- ▶ Act node-by-node to get precise results



# Check Dialog Example

```
Initializing ...
Extracting node list from OVO database ...
... Successfully done. We have to process 7 nodes.

Loading and preparing node list ...
.....
... Done. Node list holding 7 entries loaded into memory.

Request the status from each 'controlled' or 'monitored' node ...
OLA-000201-W: Error -999 when requesting status from w107.nicelab.de
...
OLA-000201-W: Error 1 when requesting status from s202.nicelab.de
....
Status request completed.
Store node lists and status to local data stores ...
.....
Data store creation done.
OLA-000300-I: Number of 'controlled' nodes in the OVO node bank:      7
OLA-000300-I: Number of 'monitored only' nodes in the OVO node bank:  0
                (See file /var/opt/OV/share/OLA/data/ola_select.csv)
OLA-000300-I: Reachable nodes (for deployment): 5
OLA-000300-I: Unreachable nodes (discarded): 2
OLA-000300-I: Unidentified agents (discarded): 0

OLA-000300-I: Number of 'message allowed' nodes in the OVO node bank: 0
                (See file /var/opt/OV/share/OLA/data/ola_no_platform.csv)
OLA-000300-I: Number of skipped nodes (unchecked platforms): 0

Do you want to see the list of 2 unreachable or 0 unidentified nodes? [y|n] y
w107.nicelab.de
s202.nicelab.de

Done
```



# Phase 2: Deploy the Instrumentation

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▶ **OLA Deploy** is an interactive Perl script executed on the MgmtSvr

▶ Run it from **OVO GUI** or from a terminal window

```
cd /opt/OV/bin/OLA  
perl ola_dodeploy.pl [-retry] [-trace]
```

▶ It requires that "OLA Check" has been executed before

▶ Confirmation is requested about:

- ◆ Completeness of SPI configuration
- ◆ Automatic or immediate mode

▶ The tool can be run multiple times with one set of nodes

- ◆ It feeds from the selected nodes determined by "OLA Check"
- ◆ Giving `-retry`, only the missed nodes are attempted



# Deployment Dialog Example

```
Initializing ...
Loading node list determined earlier ...
.....
Node list holding 7 entries, 5 of them reachable

Checking for pending deployment jobs not triggered by us ...
... No pending deployment jobs for our selected nodes.

The permanent discovery on the managed nodes normally is guided by
appropriate policy and configuration settings. Currently these are:
  Collection hour: OLA_COLLECT_HOUR 03
  Collection is performed each Sunday
Do you want to apply this setting, run immediately or quit the script?
Enter [a|i|q] for apply, immediately, quit: i

Assigning OLA policies to the reachable nodes ...
... Assignment completed.

Deploy policies and instrumentation to these nodes ...
... Deployment completed.

Store node list and status to a local data store ...
.....
Nodes data store creation done.
Deployment status creation done.

OLA-010310-I: Number of reachable nodes in the OVO node bank:      5
OLA-010313-I: OLA policies have been assigned to:                  5
OLA-010314-I: OLA policies have successfully been deployed to:    5
```



# Workflow of the Discovery Tool

Managed Node

- ▶ OVO MgdNode based Perl script `ola_hws.pl`
  - ◆ Look for the immediate collection trigger file
  - ◆ Otherwise compare current time with the collection definition
- ▶ Wait some time (random delay, up to 30 min)
- ▶ Run operating specific discovery commands
  - ◆ Determine operating system, hardware data etc.
  - ◆ Check for OV related products
  - ◆ Collect SPI info as defined
- ▶ Send a single OVO message with the discovery results
- ▶ If the discovery fails, a retry is made after one minute, up to 10 times



# Workflow of the Collection

Management Server

- ▶ Data messages get pushed from OVO message browser to disk
  - ◆ Automatic Action in OVOW
  - ◆ Separate tool in OVOU
- ▶ Collection is an OVO MgmtSvr based Perl script `ola_collsync.pl`, running in background
  - ◆ It gets started by deployment tool (immediate mode) or by policy (automatic mode)
  - ◆ Continuously screens the `.../ola/tmp` data area for new files
  - ◆ Creates a common collection file and keeps it current



# Phase 4: Using the Evaluator Tool

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▶ **OLA Evaluate** is an interactive Perl script executed on the MgmtSvr

▶ Run it from **OVO GUI** or from a terminal window

```
cd /opt/OV/bin/OLA  
perl ola_evaluator.pl [-trace]
```

▶ **Three phases:**

(1) Check status of deployment and collection

(2) Determine tiers for models reported

(3) Get license information on the MgmtSvr

▶ If interactive, the user may decide when there are sufficient data

◆ If insufficient, terminate and try again later

◆ If sufficient, start processing

▶ If automatic, processing is started immediately



# Evaluation Dialog Example

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```
OLA-030102-W: still 1 node results missing out of 5
Shall we start evaluation anyway? [y|n] y
Waiting for the collector to flush data to the data store ...
Get tiering information for all nodes ...
... Done

Adding the tier information to the results file ...
... Done

Starting determination of installed licenses ...
... Done
```



# Reporting and Presentation

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- ▶ Primary presentation is done on a web browser
- ▶ Two screens are available:
  - ◆ Filter and detail list
    - ▶ User defines the columns to show and may apply simple filtering (e.g. show only IBM systems)
    - ▶ User is able to sort according to different columns (node name, IP address, tier, ...)
  - ◆ License summary
    - ▶ Despite any filters from the previous screen, licenses are always accounted from all collected data
- ▶ CGI on OVOU – enter:  
`http://<MgmtSvr>:<Port>/OvCgi/ola_report.cgi`
- ▶ ASP on OVOW – enter:  
`http://<MgmtSvr>/HPOV_reports/ola_report.asp`



# Report Details Screen

Hewlett Packard OpenView Software Assessment Report

Management Server: s43, Date: Tuesday, 6 February 2007, 11:34:06

Show	Column Name	Filter Criteria	Show	Column Name	Filter Criteria
<input checked="" type="checkbox"/>	Name	<input type="text"/>	<input type="checkbox"/>	Report Status	<input type="text"/>
<input type="checkbox"/>	IP Address	<input type="text"/>	<input type="checkbox"/>	Collection Date	<input type="text"/>
<input checked="" type="checkbox"/>	Vendor	<input type="text"/>	<input type="checkbox"/>	SPLs	<input type="text"/>
<input checked="" type="checkbox"/>	Model	<input type="text"/>	<input checked="" type="checkbox"/>	OVO Agent Version	<input type="text"/>
<input type="checkbox"/>	Number of CPUs	<input type="text"/>	<input type="checkbox"/>	OVP Agent Version	<input type="text"/>
<input checked="" type="checkbox"/>	Tier	<input type="text"/>	<input type="checkbox"/>	GlancePlus Version	<input type="text"/>

Sort by column: OVO Agent Version (asc selected)

Buttons: Redraw, Summary

Node Name	Vendor	Model	Tier	OVO Agent Version
s43	SUN	Fire-V210	1	A.08.10.160
h54.nicelab.de			-1	
l228.nicelab.de	LINUX	i686	0	A.08.10.160
l226.nicelab.de	LINUX	i686	0	A.08.10.160
a57.nicelab.de			-1	

# Data Filter and Column Selection

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- ▶ The columns to be displayed must be selected by checking the "Show" checkbox
- ▶ Filter usage:
  - ◆ Free text filters allow a kind of wildcard search (e.g. IP address 15.\*)
  - ◆ Pulldown filters provide available values (detected)
  - ◆ Only visible columns can be used for filtering
  - ◆ More than one column can be filtered at the same time
- ▶ Sorting:
  - ◆ Only one sort criterion at a time
- ▶ Press "Redraw" to update with current settings



# Report Summary Screen

The screenshot shows a web browser window with the title "Hewlett Packard OpenView Software Assessment Summary @ s43 on Tuesday, 6 February 2007, 11:32:4 - Windows Internet Explorer". The address bar shows the URL "http://s43.nicelab.de:3443/OvCgi/ola\_summary.cgi". The browser's menu bar includes "File", "Edit", "View", "Favorites", "Tools", and "Help". The page content features the HP logo, the title "Hewlett Packard OpenView Software Assessment Summary", and a "Back to Report" button. Below this is a status bar: "Management Server: s43, Date: Tuesday, 6 February 2007, 11:32:41". The main content is a table with the following data:

Software	Licenses Deployed	Tier	Licenses Installed	Licenses Remaining
NNM Advanced Edition Unlimited (Managed Nodes)	n/a	n/a	0	n/a
NNM Advanced Edition Unlimited	n/a	n/a	0	n/a
OVO Agent	2	-1	0	-2
OVO Agent	2	0	10	8
OVO Agent	1	1	10	9
OVO Agent	0	2	10	10
OVO Agent	0	3	10	10
OVO Agent	0	4	10	10
OVP Agent	1	0	0	-1

The browser's status bar at the bottom shows "Internet" and "100%" zoom level.

# How to Read the Summary Screen

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- ▶ Summarize over all systems that have responded
  - ◆ Disregard any filters applied on the previous screen
- ▶ OVO, OVP and SPIs are listed by tiers
  - ◆ One row per tier (0-4)
  - ◆ Unknown hardware is collected in "-1" row for each software
  - ◆ Blank fields indicate no value available (no license file, no data)
- ▶ The "Licenses Remaining" column shows missing licenses as negative numbers, leftover licenses are positive



# Further Processing of the Results

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## ▶ Data file improvements and processing

- ◆ Result data, license data etc. are all simple CSV files
- ◆ Data can be completed (e.g. add manual tier information) at any time and page can be re-displayed then
- ◆ Can easily be imported into spreadsheet programs like Excel etc.



# Summary

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- ▶ OLA is an excellent tool to collect OpenView Operations related software throughout the network
- ▶ It is flexible and tolerant in many different environments
- ▶ The tool applies what it is measuring – OVO
- ▶ It creates a repository of installed software and keeps it current
- ▶ Data can be used directly for compliance reports



# Backup Slides

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Vivit German User Conference 2007

# Installed Components

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## ▶ Policies

- ◆ Schedule policies for discovery and automated collection
- ◆ Interface policies for the data forwarding from the managed nodes

## ▶ Instrumentation

- ◆ Perl scripts in the database directory for distribution to the managed nodes
- ◆ Perl scripts on the management server for central functions provided with OLA
- ◆ SQL/VBS scripts to access the OVO database

## ▶ Report Scripts

- ◆ for web based reporting in the OV common places



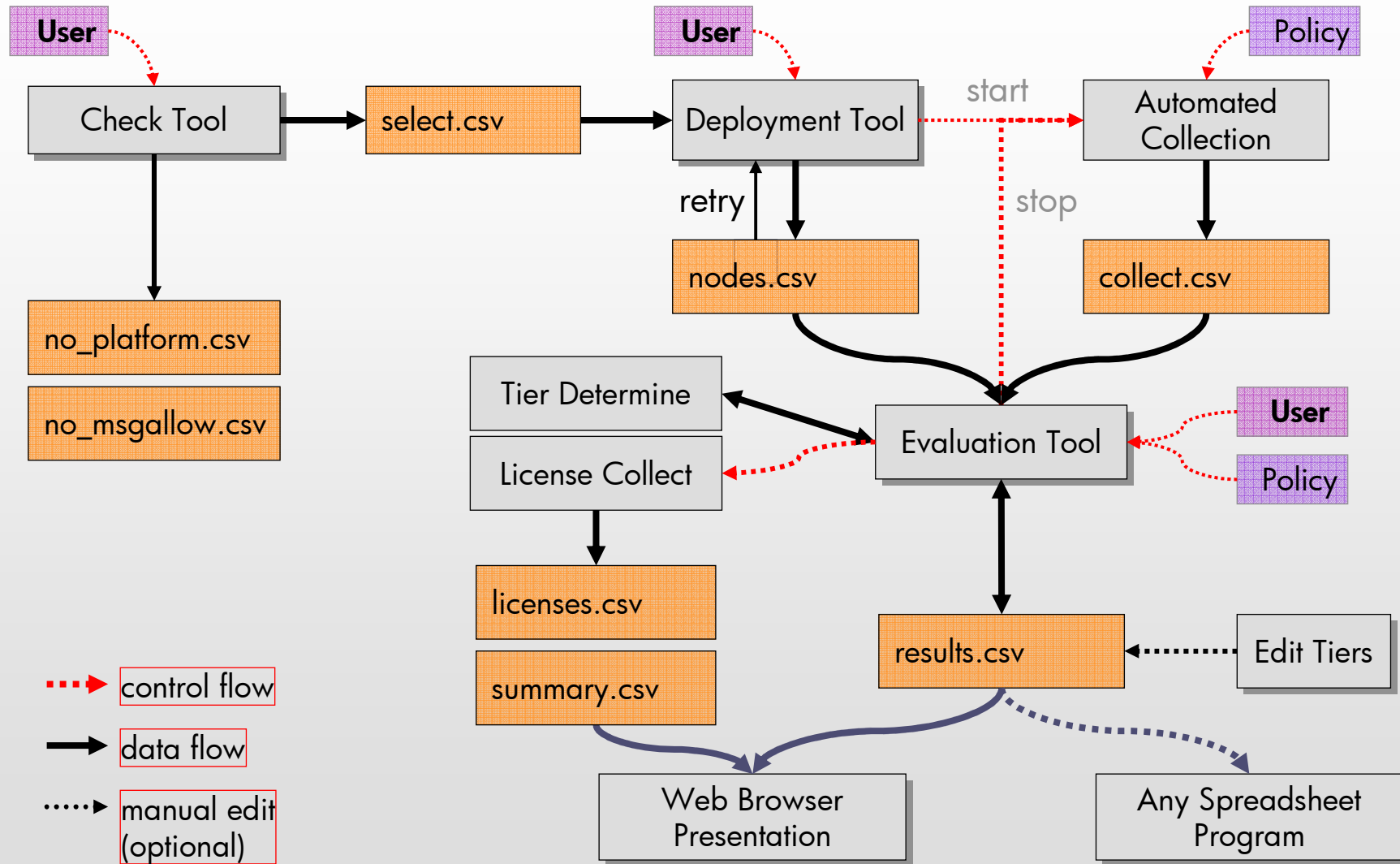
# Preparing an OLA Execution

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- ▶ Check the overall layout of the management domain(s)
- ▶ Clean up the node bank
- ▶ Make sure there are no pending or unscheduled deployments
- ▶ Determine key policies of all SPIs to be discovered
- ▶ Run the check tool upfront
- ▶ Plan some time to check failing nodes
- ▶ Have a list of virtual nodes / logical partitions ready
- ▶ Expect four hours execution time per management server



# Data Flow on Management Server



# License Determination

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- ▶ MgmtSvr based script `ola_licenses.pl`
- ▶ NNM: Different packages may be installed
  - ◆ License packages (250, 1000) can be there
  - ◆ Unlimited licenses are handled separately
  - ◆ NNM is optional on OVOW systems
- ▶ Details and summaries
  - ◆ Keep details (one row per license key) for manual processing
  - ◆ Summarize findings for easy reporting



# Version Reporting

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## ▶ Management Server

- ◆ On OVOU we determine the version from swlist(1m)
- ◆ On OVOW the information is obtained from the Windows Registry

## ▶ Managed Nodes

- ◆ On each node, we collect the agent versions for OVO and OVP (where obtainable)
- ◆ Versions are listed in the detail list reports



# Where are potential issues / Caveats (1)

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## ▶ General

- ◆ Network problems
- ◆ Flexible management setup (multiple management servers)

## ▶ Node determination

- ◆ Poorly maintained node bank
- ◆ Unsupported platforms (incl. old agents)
- ◆ Unreachable nodes

## ▶ Instrumentation Deployment

- ◆ Alien policies get deployed with OLA
- ◆ Bottleneck in OVO
- ◆ Unreachable nodes



# Caveats (2)

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## ▶ Discovery

- ◆ Undiscovered SPIs
- ◆ Non-standard setup of the agent (e.g. no Perl)
- ◆ Messages sent to other management server
- ◆ Non-responding nodes

## ▶ Collection

- ◆ Time frame has expired before all messages arrived

## ▶ Evaluation

- ◆ Did you wait one hour?
- ◆ Missing model strings in the tiering matrix
- ◆ No detection of virtual systems (free licenses / count differently)

