



ASAP Overview and Status Update

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Why Monitor Availability?

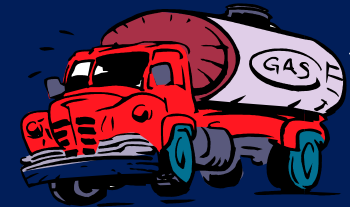
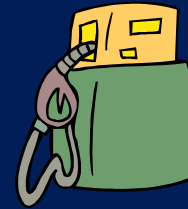
- Research shows Availability

- Is improved by Monitoring
- Is a relative Notion ☹️
- Has many Dependencies
- Defined by Service-Level Objectives



- To provide true High Availability Enterprise

- Cannot just Monitor Hardware & Operating System
- But must also Monitor Availability of Application Domains ☹️
- External Monitoring inadequate; Apps Hang, Loop, Deadlock
- External Monitoring cannot know about internal domains/values



- If Application Domain Service Levels are not monitored, it is impossible to know when your enterprise becomes unavailable.

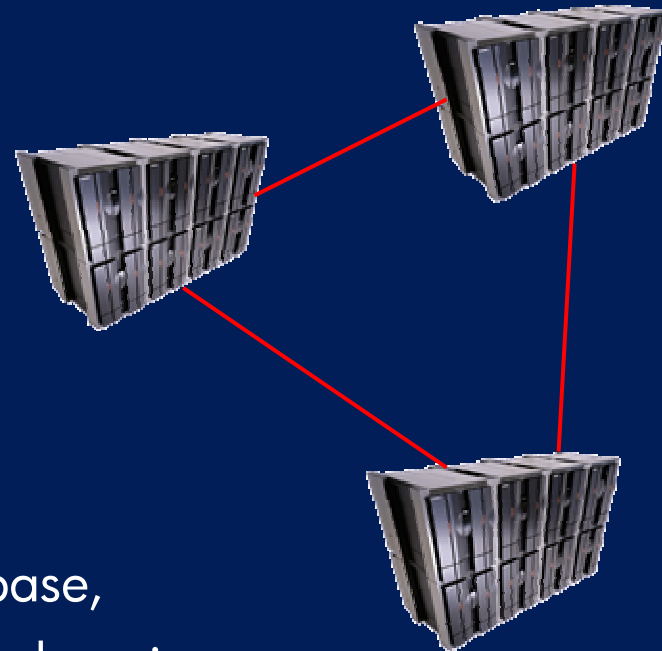


What is ASAP?



- **Availability
Monitoring
Infrastructure**

- For NonStop Servers
- Engineered specifically for NonStop Server Architecture
- Provides true NonStop Server Fault-Tolerant Process-Pairs, Database, and published API for application domains.
- All ASAP components are fully fault tolerant, automatically restart and recover, even when Cpus, devices, or objects go up and/or down.



What ASAP is Not?



- **Not an EMF**

- ASAP is Not an enterprise management framework (EMF) such as Unicenter, NetView, OpenView...

- ASAP is an availability monitoring infrastructure

- Engineered specifically for NonStop server systems

- Includes “deep” system, subsystem, and API agents

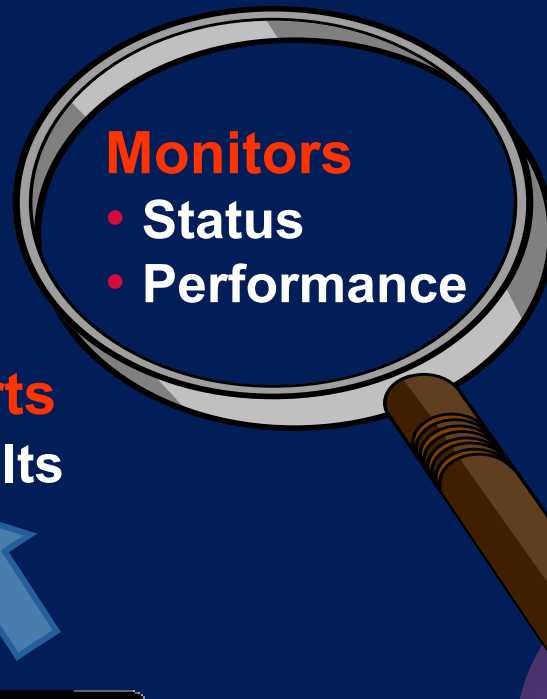
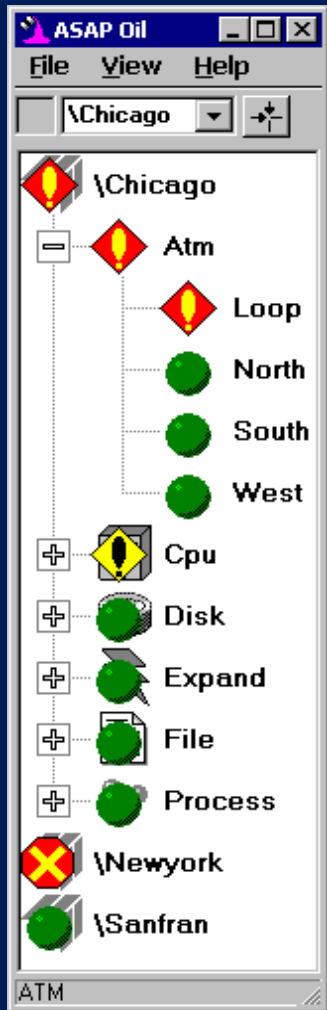
- Has massively-parallel shared-segment Provider API

- Has patented Consumer API for value-add functions

- Also provides a wide-variety of public interfaces

- Including optional interface to OpenView

How does ASAP work?



Reports

- Results

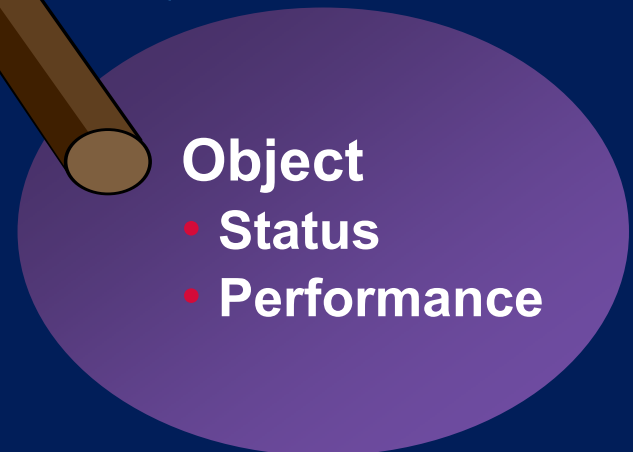


Analyzes

- Service Level Objectives
- Determines Availability

Objectifies

- Information into Object-State DB



What Interfaces does ASAP provide?



02-09-17 11:42:01 *TANDEM.ASAP.V02
ASAP ALERT Atm Chicago\ \$Atm Status Cash 150

02-09-17 11:42:01 *TANDEM.ASAP.V02
ASAP ALERT File \$Data.App.Cash RWEF "nnnn"

02-09-17 11:42:02 *TANDEM.ASAP.V02
ASAP ALERT Process \$App2 Status Down

02-09-17 11:49:02 *TANDEM.ASAP.V02
ASAP ALERT Funds\Transfer Status Lost Trans

02-09-17 11:49:02 *TANDEM.ASAP.V02
ASAP ALERT Expand \$Lhny Status Connecting

02-09-17 11:49:02 *TANDEM.ASAP.V02
ASAP ALERT Disk \$Data Full > 95%

ASAP Published interfaces

- EMS Events
- SNMP Traps
- Provider APIs
- Consumer APIs
- 3rd party Entities
- Published Database
- Batch Query Interface
- Conversational Interface
- Graphical User Interface
- Web Viewpoint Interface
- Optional EMF interfaces

• ASAP EMS interfaces

- EMS Distributor
- EMS Analyzer
- ViewPoint
- Example



EMSA – EMS Analyzer - T9671 AAE
Alter Text "ASAP ALERT"

02-09-17 11:42:01 *TANDEM.ASAP.V02
ASAP ALERT Atm Chicago\ \$Atm Status Cash 150

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ASAP – Web Viewpoint Interface



ASAP WebVpt Interface

- Object State Alerts
- Availability Alerts
- Performance Alerts
- Service-Level Alerts

Examples:

- Spooler \$SpIs \$S
Num Jobs = 72
- File \$System.Userid
Rwep = AAAA
- Process \$Xcat
Cpu = 0
- Disk \$System Status
Mirror Hard Down
- Disk \$Data
Full 96%

Sr #	Generation Time	Process ID	Subsystem ID	Event #	Text
0001	2003/04/14 15:08:01	\TANDA.\$KODO	*TANDEM.226.V02	004000	ASAP ALERT Spooler \$SpIs\Coll\\$\$ Numjobs 72
0002	2003/04/14 15:08:01	\TANDA.\$KODL	*TANDEM.226.V02	004000	ASAP ALERT File \$System.System.Userid Rwep AAAA
0003	2003/04/14 15:08:01	\TANDA.\$KODT	*TANDEM.226.V02	004000	ASAP ALERT Process \$Xcat Cpu 0
0004	2003/04/14 15:08:12	\TANDA.\$KODJ	*TANDEM.226.V02	004000	ASAP ALERT Disk \$System Status Mirror disk hard down
0005	2003/04/14 15:08:12	\TANDA.\$KODJ	*TANDEM.226.V02	004000	ASAP ALERT Disk \$Data Full 96
0006	2003/04/14 15:08:14	\TANDA.\$KODM	*TANDEM.226.V02	004000	ASAP ALERT Cpu 1 Busy 95

ASAP – HP Open Enterprise Management Gateway



- OEM interface allows sharing of ASAP
 - Object-States
 - Availability States
 - Performance States
 - Service-Level States

- OEM uses patented technology to allow switching between
 - OIL interfaces
 - Custom interface
 - EMF interfaces

- Example - OEM switch between:
 - OIL
 - TNG
 - Custom
 - OpenView

The screenshot displays three windows from the OEM interface:

- OEM Annunciator TROM:** Shows a grid of service status indicators. The top-left indicator for '\Accounts' is red with a yellow warning icon and labeled 'Critical'. Other indicators for '\Atm', '\Forecast', and '\Teller' are green with 'Up' status.
- OEM: Alerts - Object View [\Centdiv\App]:** A table listing alerts with their names and context information.

Name	Context
\Centdiv\App\Accounts\Payable\STt29	TransRate 1.3348
\Centdiv\App\Accounts\Payable\STt30	TransRate 0.1669
\Centdiv\App\Accounts\Receive\STt31	TransRate 0.3337
\Centdiv\App\Accounts\Receive\STt32	TransRate 0.3337
- OEM Options:** A dialog box with the 'Adapters' tab selected. It contains a table of adapters and their states.

Adapter Name	Class Name	State
OIL	OilServ.DEMAdapterRequestClass	Active
TNG	TNGAdapterRequestClass	Inactive
DemAdapt	DemAdapt.TestAdapterClass	Inactive
NetView	NetViewAdapter.RequestClass	Inactive
OpenView	OpenViewAdapter.RequestClass	Inactive
Announce	TromASAP.DEMAdapterRequestClass	Inactive

ASAP – OpenView Operations Interface



ASAP OpenView Interface shares

- Object-States
- Availability
- Performance
- Service Levels

All object types automatically supported

- System objects
- Subsystems
- App domains
- Third party plug-in entities

Also provides both interface types

- Fat client
- Thin client

The screenshot displays the HP OpenView Operations interface. The top window shows a network map for 'HP NonStop Servers (ASAP)' with a central 'Chicago' node connected to various components like 'Atm', 'Cpu', 'Disk', 'Expand', 'File', '\$Data', 'Test', '\$System', 'Process', 'Processbusy', 'Process', 'Rdf', 'Sanfran->chi', 'Spooler', 'Tmf', 'Tape', and 'Spooler'. The bottom window shows a log table with the following data:

Severity	S	U	I	A	O	N	Received	Service	Application	Object	Text				
Critical	-	-	-	-	-	-	4/8/2003 3:18:24 PM	Account	ASAP	Chicago\File\\${Data}\Account\Db	Status No...				
Major	-	-	-	-	-	-	4/8/2003 3:18:25 PM	\$Spls	ASAP	Chicago\Spooler\\${Spls}\Coll	Full% 93				
Major	-	-	-	-	-	-	4/8/2003 3:18:25 PM	Updater	ASAP	Chicago\Rdf\Sanfran->chi\Updater,...	RTD5ecs ...				
Major	-	-	-	-	-	-	4/8/2003 3:18:24 PM	System	ASAP	Chicago\File\\${System}\System\Userid	Rwep nnnn				
Major	-	-	-	-	-	-	4/8/2003 3:18:24 PM	Expand	ASAP	Chicago\Expand\\${Lhny}	Status Cntg				
Major	-	-	-	-	-	-	4/8/2003 3:18:24 PM	Cpu	ASAP	Chicago\Cpu\01	Queue 5				
Minor	-	-	-	-	-	-	4/8/2003 3:18:24 PM	Tmf	ASAP	Chicago\Tmf\Transactions	Duration 345				
Minor	-	-	-	-	-	-	4/8/2003 3:18:24 PM	Process	ASAP	Chicago\Process\\${Acs1}	QLen 8				
Minor	-	-	-	-	-	-	4/8/2003 3:18:24 PM	Process...	ASAP	Chicago\Processbus\01	Bus% 73				
							4	5	4	6	0	0	0	0	50000

ASAP – OpenView Web Interface



ASAP OpenView Web Interface

- Object-States
- Availability
- Performance
- Service Levels

All object types automatically supported

- System objects
- Subsystems
- App domains
- Third party plug-in entities

Filter Messages for **Chicago**

Include Severities: Critical Major Minor Warning Normal Unknown

Include Types: Active Acknowledged Both

Group: Object: Application:

Time Range: Count:

T:13 :4 :5 :4 :0 :0 :0

Select	Severity	Received	S	U	I	A	O	N	Node	Application	Object	Message
<input type="checkbox"/>	Critical	4/18/2003 3:10:37 PM	-	-	-	-	-	-	Chicago	ASAP	Chicago\Tape\Tape0	MTime 17...
<input type="checkbox"/>	Critical	4/18/2003 3:10:37 PM	-	-	-	-	-	-	Chicago	ASAP	Chicago\Cpu\00	Status Down...
<input type="checkbox"/>	Critical	4/18/2003 3:10:37 PM	-	-	-	-	-	-	Chicago	ASAP	Chicago\Atm\Loop	Cash 150...
<input type="checkbox"/>	Critical	4/18/2003 3:10:36 PM	-	-	-	-	-	-	Chicago	ASAP	Chicago\File\Data\Account\Db	Status NoFile...
<input type="checkbox"/>	Major	4/18/2003 3:10:37 PM	-	-	-	-	-	-	Chicago	ASAP	Chicago\Rd\Sanfran->chi\Update\Up01	RTDsecs 120...
<input type="checkbox"/>	Major	4/18/2003 3:10:37 PM	-	-	-	-	-	-	Chicago	ASAP	Chicago\Spooler\Spls\Coll	Full% 93...
<input type="checkbox"/>	Major	4/18/2003 3:10:37 PM	-	-	-	-	-	-	Chicago	ASAP	Chicago\Cpu\01	Queue 5...
<input type="checkbox"/>	Major	4/18/2003 3:10:36 PM	-	-	-	-	-	-	Chicago	ASAP	Chicago\File\System\System\Userid	Rwep nnnn...
<input type="checkbox"/>	Major	4/18/2003 3:10:36 PM	-	-	-	-	-	-	Chicago	ASAP	Chicago\Expand\Lhny	Status Cntg...
<input type="checkbox"/>	Minor	4/18/2003 3:10:37 PM	-	-	-	-	-	-	Chicago	ASAP	Chicago\Tmf\Transactions	Duration 345...

Properties | Actions | Annotations | Instructions

Severity: Critical

State: Active

Owner: -

Received: 4/18/2003 3:10:37 PM

Node: Chicago

Service: Atm

Group: -

Object: Chicago\Atm\Loop

Application: ASAP

Message Text:

ASAP – In-Depth Analysis Interface



ASAP has many interfaces...

- In addition to interfaces via: Database, CI, EMS, EMSA, EMSDIST, Viewpoint, WebViewpoint, OEM, and HP OpenView
- ASAP also includes rich in-depth analysis client
- Service levels mapped onto uniform state model that color synchronize
 - Tree
 - Graph
 - Grid Views
- Context sensitive popup menus can also be displayed on any object

The screenshot shows the ASAP Oil interface. On the left is a tree view showing a hierarchy: \Chicago (red diamond), Atm (red diamond), Loop (red diamond), North (green circle), South (green circle), West (green circle), Cpu (yellow diamond), Disk (green circle), Expand (green circle), File (green circle), Process (green circle), \Newyork (red diamond), and \Sanfran (green circle). On the right is a 3D bar chart titled 'Atm \Chicago.*' showing data for \Chicago.Loop Cash 150. A context menu is open over the chart with options: Show Object Details, Show Object History, Graph Object History, Show Related Apps, Show Related Disks, Show Related Files, Show Related Processes, Show Related Expand Lines, Show Related Objectives, Suppress States..., Refresh, and Properties. A callout bubble labeled 'Tree Graph Grid' points to the chart area. Below the chart is a table with columns 'Cash', 'Trans', and 'Rate'.

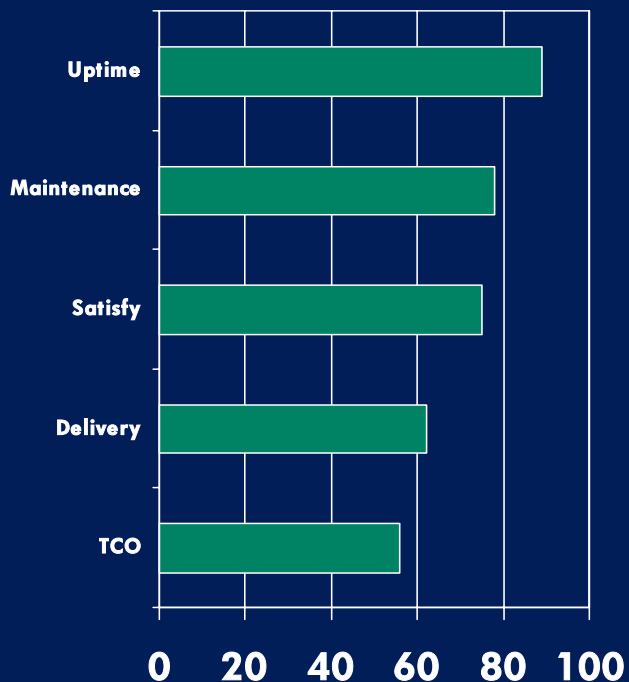
NodeName	Cash	Trans	Rate
\Chicago	150	0.00	0.000
\Chicago	North	Up	3750 4.00 0.067
\Chicago	South	Up	4865 3.00 0.050
\Chicago	West	Up	5150 2.00 0.033

ASAP – Application Availability Monitoring Benefits



- **Survey of 250 IT managers ***

What Benefit does your company receive from improved Application quality?



– **More Enterprise Uptime - 89%**

– Reduced Maintenance - 78%

– Improved Customer Satisfaction - 75%

– More efficient business processes – 60%

– Reduced Cost of ownership – 56%

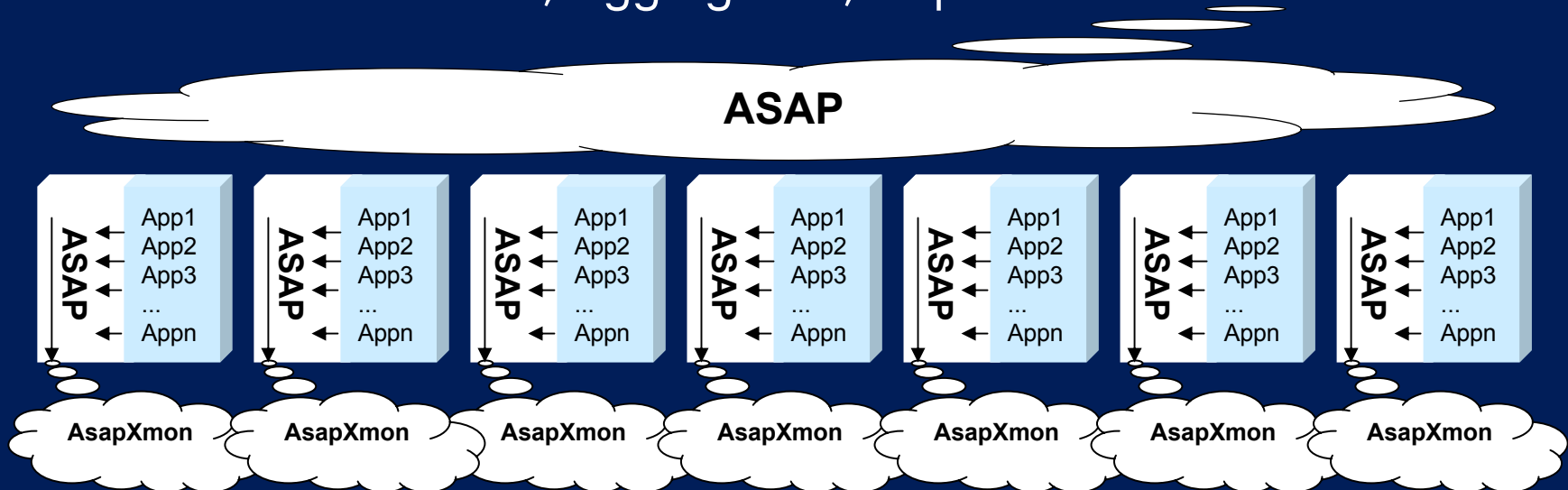
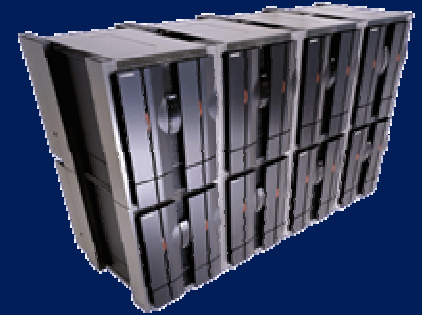
* Source –Information Week Research, Software Quality – May, 2003

ASAP – API Interface

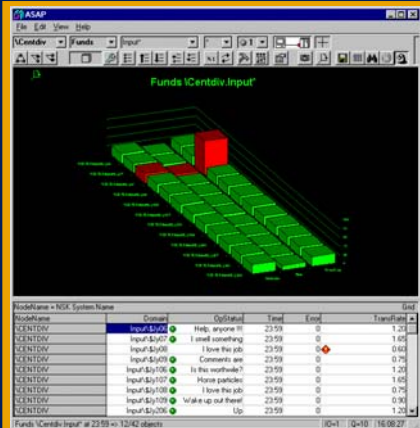


• ASAP's Massively-Parallel Shared-Segment API Architecture

- Provides deep application domain monitoring
- Monitoring allows improved application quality
- Engineered for NonStop server MP architecture
- Ultra-fast, non-blocking, interface - Apps never wait
- Efficient stats collection, aggregation, objective alerts

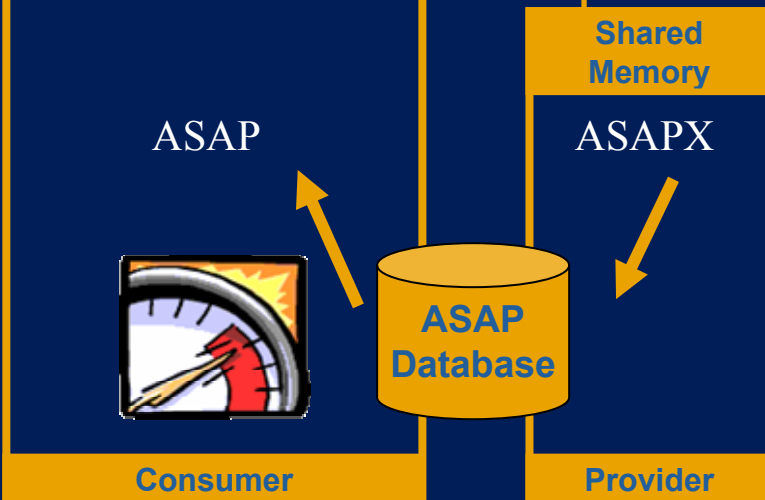


ASAP – API Interface - Example



```

domain_name := "Atm\Zeist\North";
ASAP_REGISTER_( domain_name : length
                , domain_handle);
.
.
ENDTRANSACTION;
ASAP_UPDATE_( domain_handle, error_detail
              , Data_item, Value, Math );
    
```



Data_item - Defined by EDL

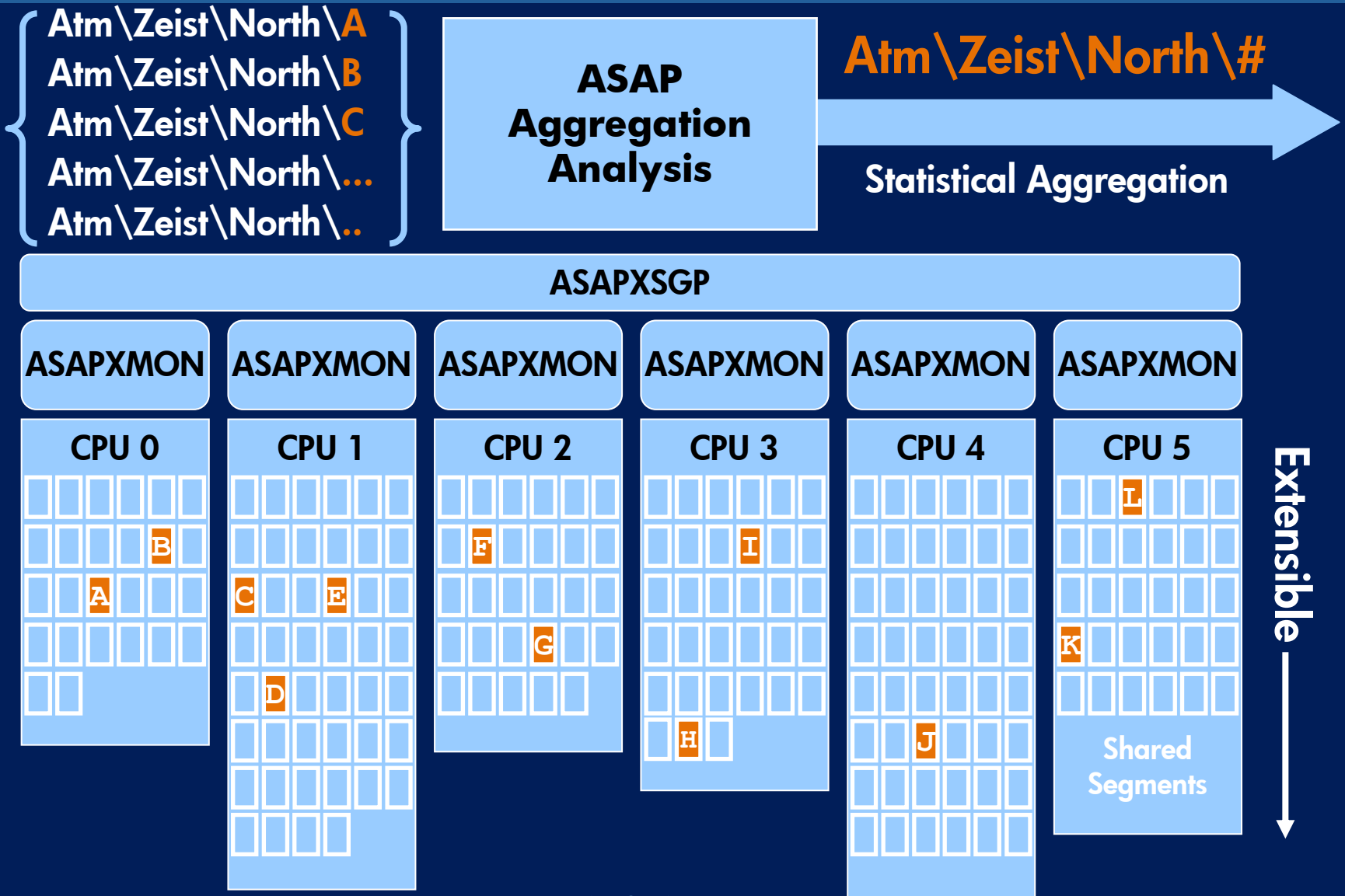
Value - Defined by application

Math = 0 - Add Value to Data_item

Math = 1 - Assign Value to Data_item

Math = 2 - Assign Text to Data_item

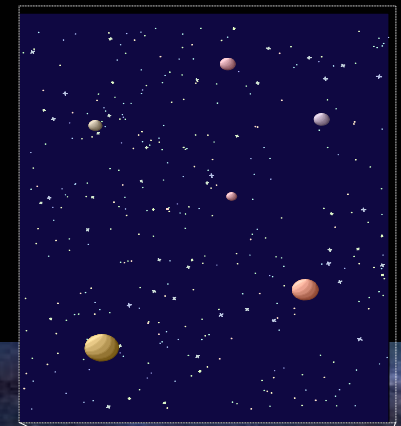
ASAP – MPS² Domain Aggregation



ASAP Hierarchical Service-Level Objectives



- ASAP DOTs – Discreet Hierarchical Service-Level Objective thresholds:
 - Rank Atm, Cash > 1500
 - Rank Atm Zeist, Cash > 3000
 - Rank Atm Zeist\North, Cash > 4500
 - Rank Cpu 7, Busy < 60, Queue < 3, Swaps < 6
 - Rank File \$Data.Master.Accounts, Full < 80
 - Rank File \$System.System.Userid RWEPP = "oooo"
- Dynamic Inclusion-Exclusion
 - Monitor Cpu, ON
 - Monitor Cpu 7, OFF
 - Monitor Disk, ON
 - Monitor Disk \$Data2, OFF
 - Monitor Process \$App5, ON
 - Monitor File \$System.System.Userid



ASAP 2.x – Status Update



- **New Features and Fixes during past 24 months:**
 - **Release 2.0**
 - **Discrete Object Thresholds** – Add service level objective monitoring
 - **12 System Entities** – All old entities reworked for DOTs & EMS
 - **Entity Definition Language** – Provide extensible environment
 - **Custom Namespace, Icons, and Colors** – Addressed I18N
 - **Release 2.1**
 - **Availability Events** – EMS events on all ASAP entity types
 - **EMS availability events** - Extended to include object status
 - **37 new features and minor bug fixes** – 2.1 Extreme reliability
 - **Release 2.2 ... 2.3**
 - **EDL compiler performance improved 403%** - Ansi ↔ Unicode
 - **Support for regional language locales** - internationalization
 - **New plug-in entities** - Total entities implemented w/ASAPX in 100s
 - **Release 2.4**
 - **Support for 10,000 abstract domains per processor**
 - **Process ZLE grouping & aggregation of abstract process domains**
 - **New in-memory detail & aggregation functions improve performance**

• ASAP Future Directions

- Ongoing massively-parallel enhancements to infrastructure
- Continued optional integration with a variety of HP products
- For example, an optional HP OpenView Operations interface
- Performance enhancements – ongoing goal – EDL 403% faster
- New & Enhanced entities... Cpu, Disk, File, Process, RDF, TMF
- Get latest ASAP news, info, and demos on the world wide web at ASAP technical portal - <http://NonStopAsap.com>





i n v e n t

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