Improving Application and Operational Support for Virtualized Applications

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Customer Pain Point and Opportunity

- Adoption of VM technology decouples applications from physical resources, performance and availability issues are now harder to triage
- VMware vCenter Appspeed, thought packet introspection at the virtual switch provides the application mapping, performance and SLA monitoring, and the ability to do root cause analysis
- Once the identification of the problem or incident occurs, there is no automatic way to resolve the issue through a set of best practice automation workflows
- Handling both Physical and Virtual resources are key!
- → Cisco's Tidal Intelligent Automation solution can take the information from vCenter / Appspeed and execute a set of best practices to further diagnose & resolve the issue
- → Cisco's Tidal Intelligent Automation solution can also generate diagnosis analysis with recommended guided procedures for corrective actions.

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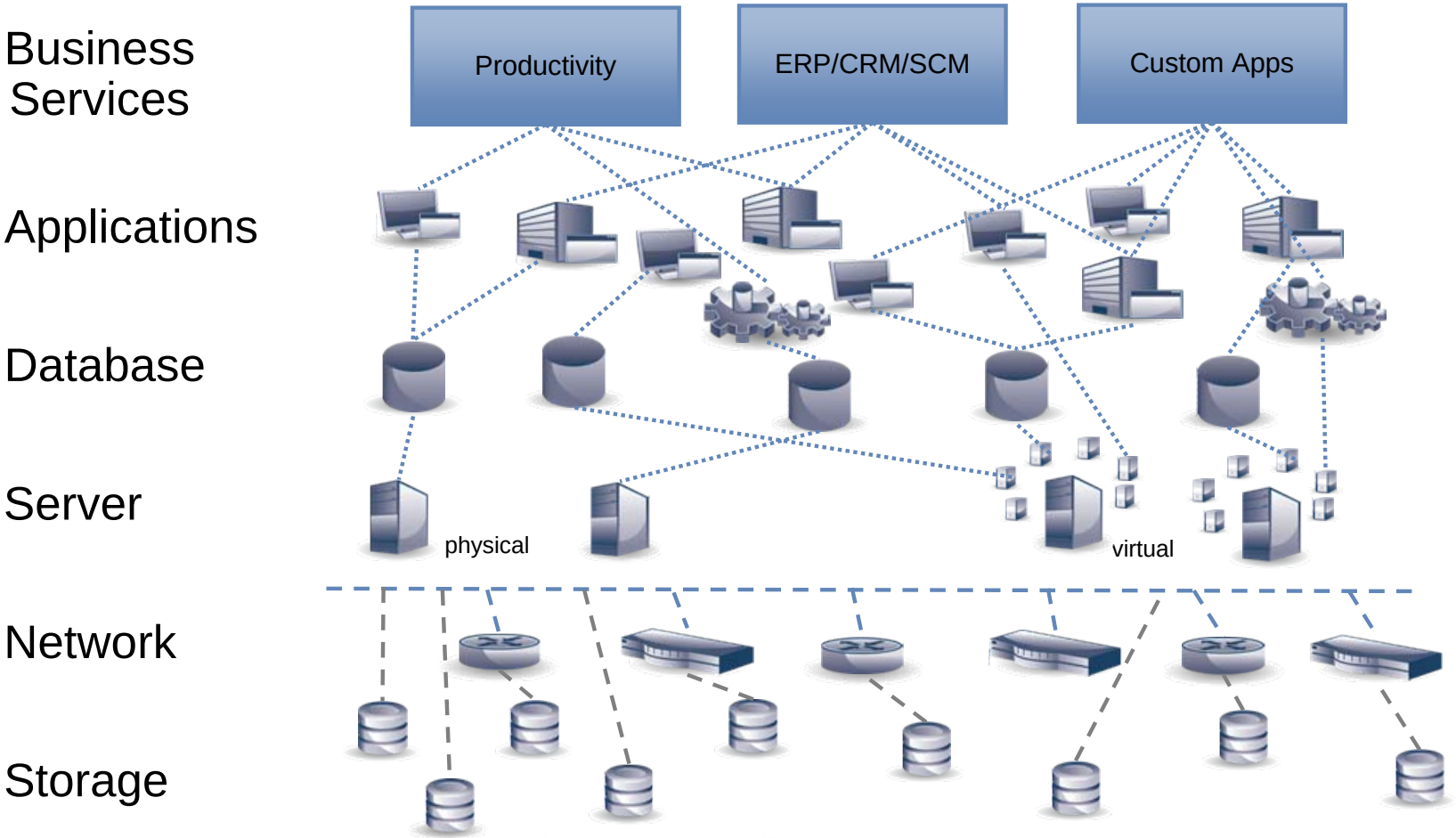
Manage the stack Horizontally and Vertically, Physical and Virtual



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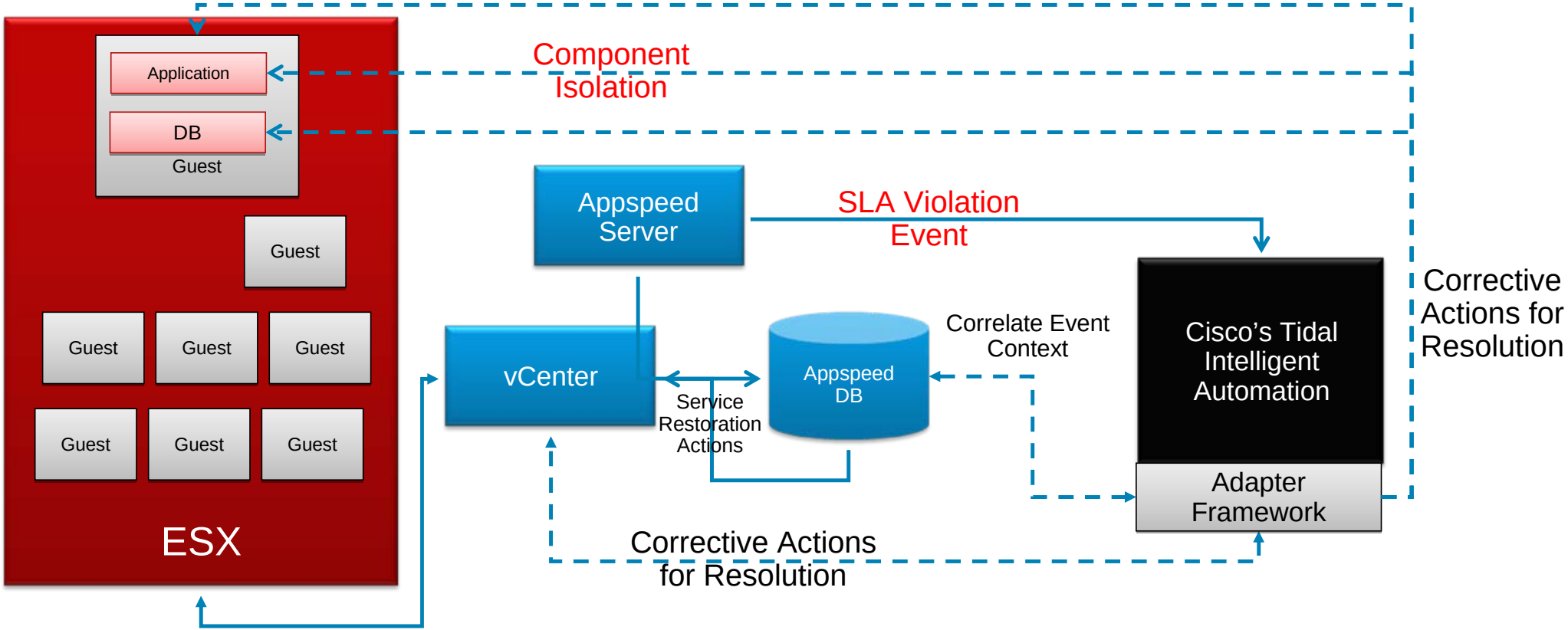
Scenario

The Journey from Viewing to Doing…



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TIDAL INTELLIGENT AUTOMATION

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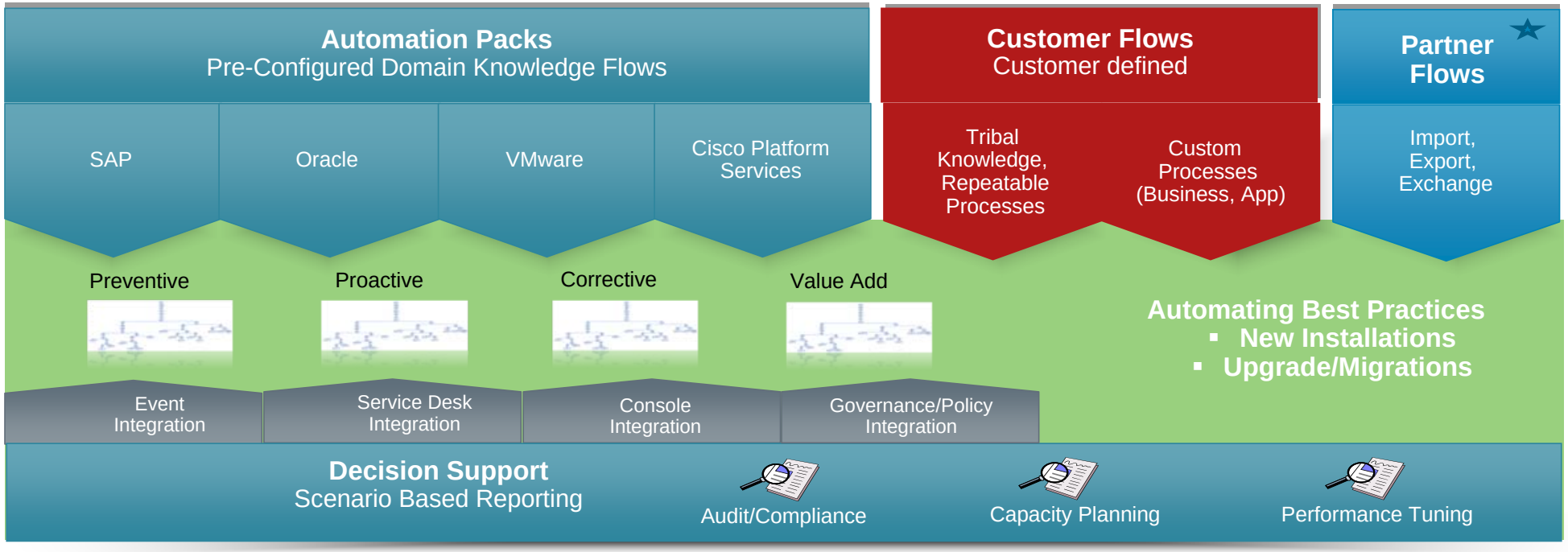
Intelligent Automation Platform



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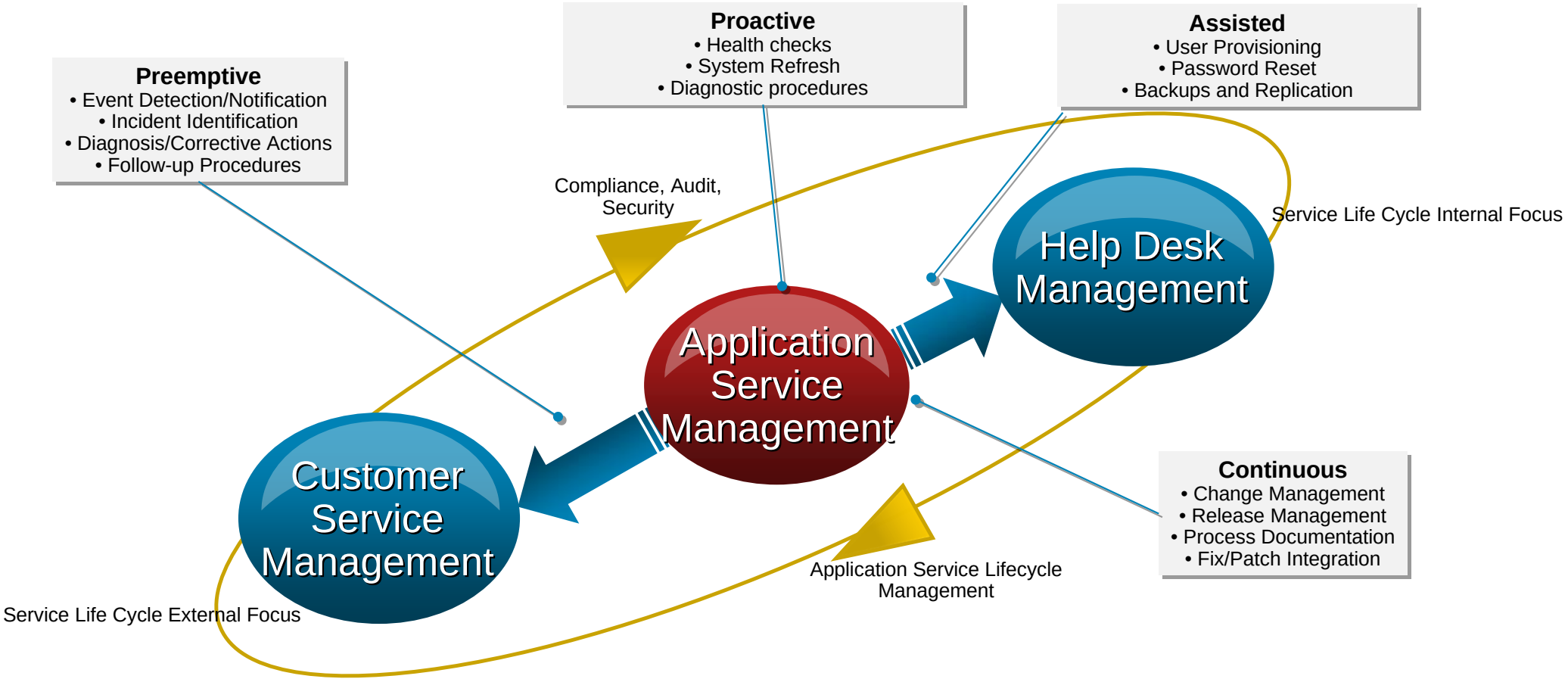
Automation Focused on Application and Operational Support



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Intelligent Automation - Console

Tidal Intelligent Automation [http://localhost:10001/TidalIA/]

File Edit View Go Tools Actions Help

New

Definitions

- Getting Started
- Processes
- Global Variables
- Calendars
- Targets
- Target Groups
- Runtime Users
- Knowledge Base Articles
- Categories

Operations

Definitions

Administration

Favorites

Processes

Filter by Category: SAP Infrastructure J2EE

Name	Target	Runtime User	Triggers	Categories
Cluster Management - Proces...	SAP Java Systems		Schedule	SAP Infrastructu...
Configuration Manager - Cache	SAP Java Systems		Schedule	SAP Infrastructu...
Dispatcher Queue Monitor	SAP Java Systems		Schedule	SAP Infrastructu...
Generic SAP Telnet Command	SAP Java Systems		Schedule	SAP Infrastructu...
IView Response Time	SAP Java Systems			SAP PI, SAP PI,...
J2EE Connections Manipulato...	SAP Java Systems		Schedule	SAP Infrastructu...
J2EE Memory Service Metrics	SAP Java Systems		Schedule	SAP Infrastructu...
Memory Service - Used Memory	SAP Java Systems		Schedule	SAP Infrastructu...
Monitor Cluster Status	SAP Java Systems		Schedule	SAP Infrastructu...
Monitor J2EE Server Logs	SAP Java Systems		Schedule	SAP Infrastructu...
Server Queue Monitor - Applic...	SAP Java Systems		Schedule	SAP Infrastructu...
Server Queue Monitor - System	SAP Java Systems		Schedule	SAP Infrastructu...

Details - No object(s) selected

143 Items

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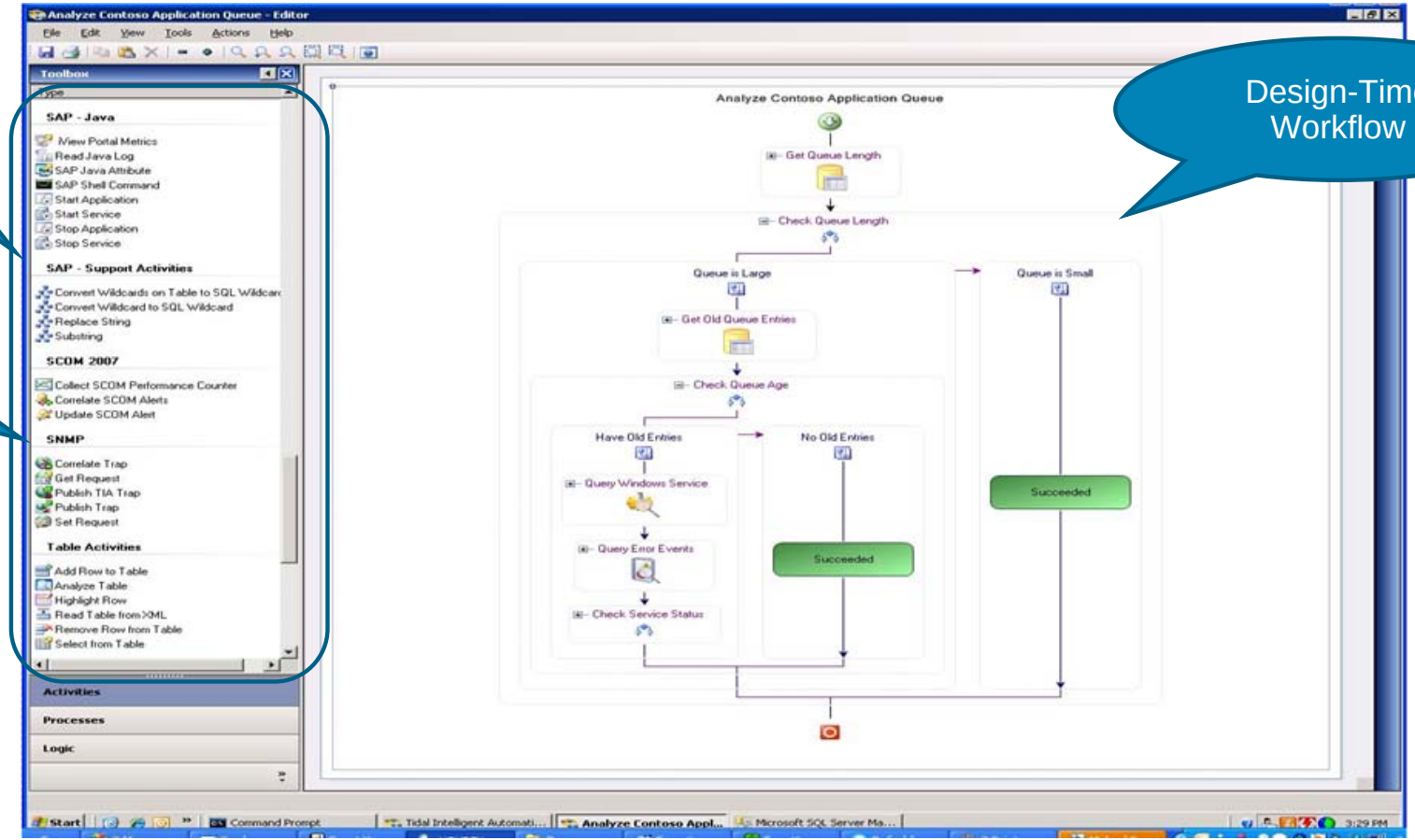
Intelligent Automation - Designer

Activities and Processes

Domain Application Support

Design-Time Workflow



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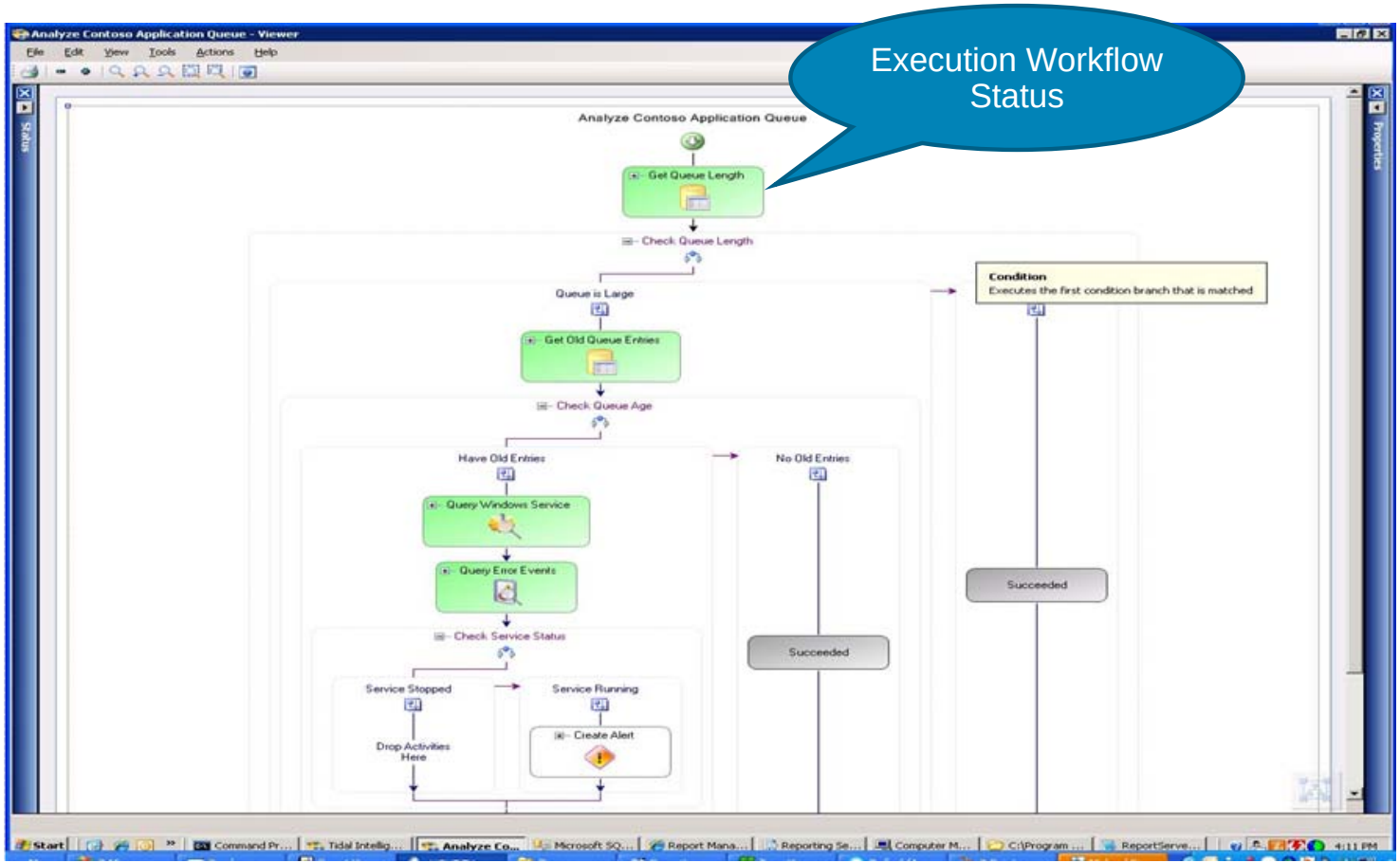
Intelligent Automation – Run-Time



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SCENARIO

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AppSpeed - Dynamic Discovery and Mapping

VMware App Speed

Connect | Zoom In | Zoom Out | Auto Zoom

Overview | Vehicle | Customer | OCD | Catalog | Contact | Personalize | LogOff

Navigation path : > Vehicle

Search

Search Vehicle Number 17 Go MyVehicles Carpark Advanced

Vehicle List :

Perform Action Move to Carpark Execute

Vehicles Found :1

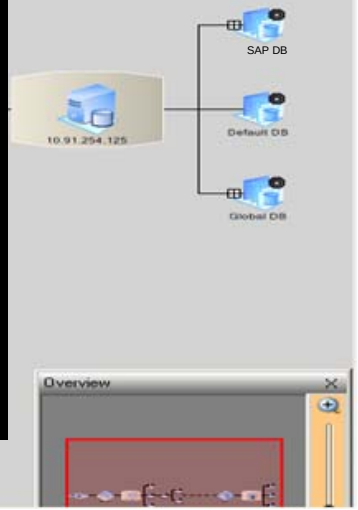
Detail	Vehicle Number	Vehicle ID No.	Manufacturer	Model	Availability	Vehicle Status	Location	Gross Price	Currency	Dealer	Customer	External Ve
	0000000017		Company	A79 MAKE TO ORDER	Sold	Vehicle at Dealer	Dealer	1610.00	EUR	0000007901	0000000002	

Details for Vehicle 0000000017

Configuration | History | Dealer | Customer | Pricing | Shipping details | Billing details | Sales Order Configuration

Configuration

Characteristic	Value
Engine	TURBO
Body	MINI VAN
Trim	CLOTH



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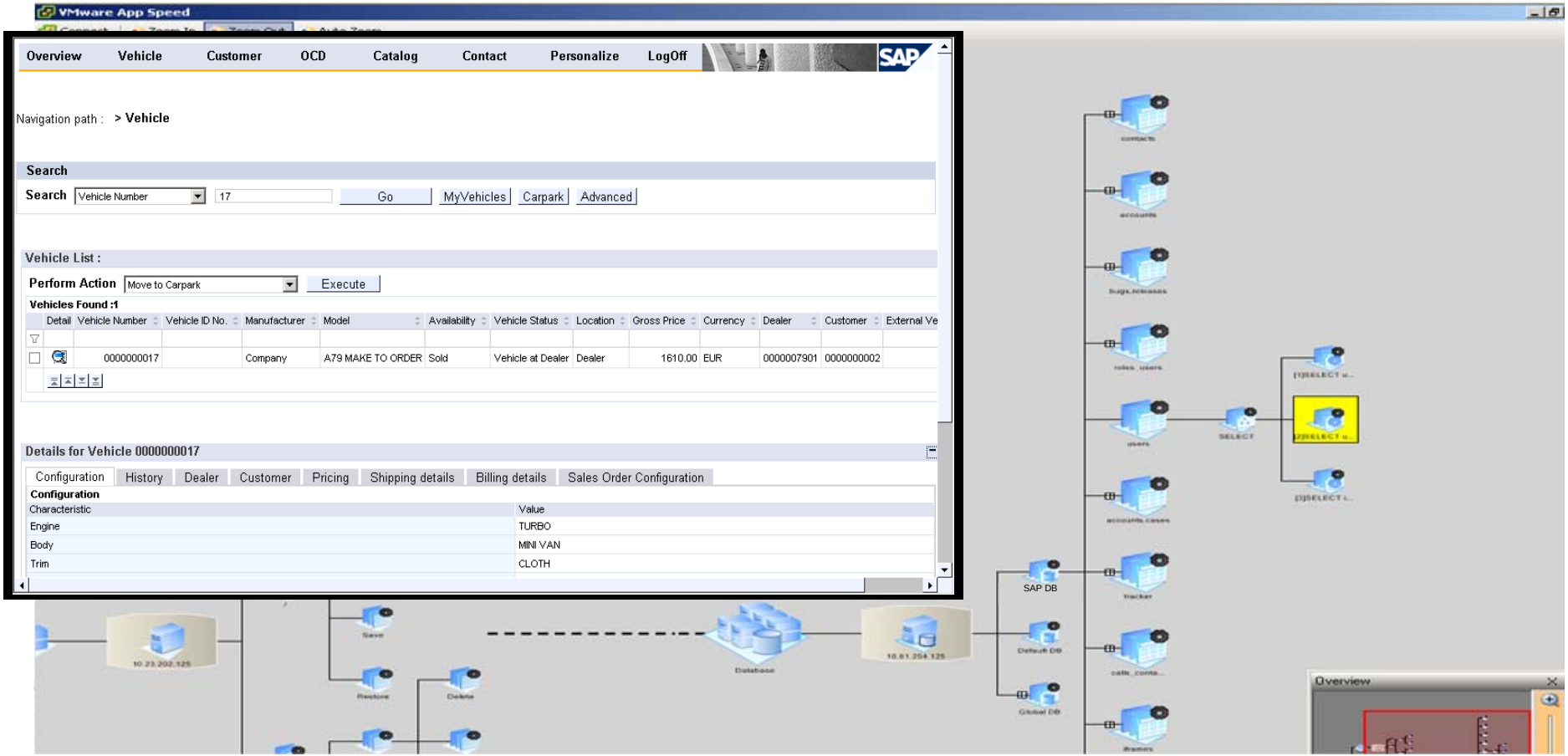
AppSpeed Isolates Problem Area



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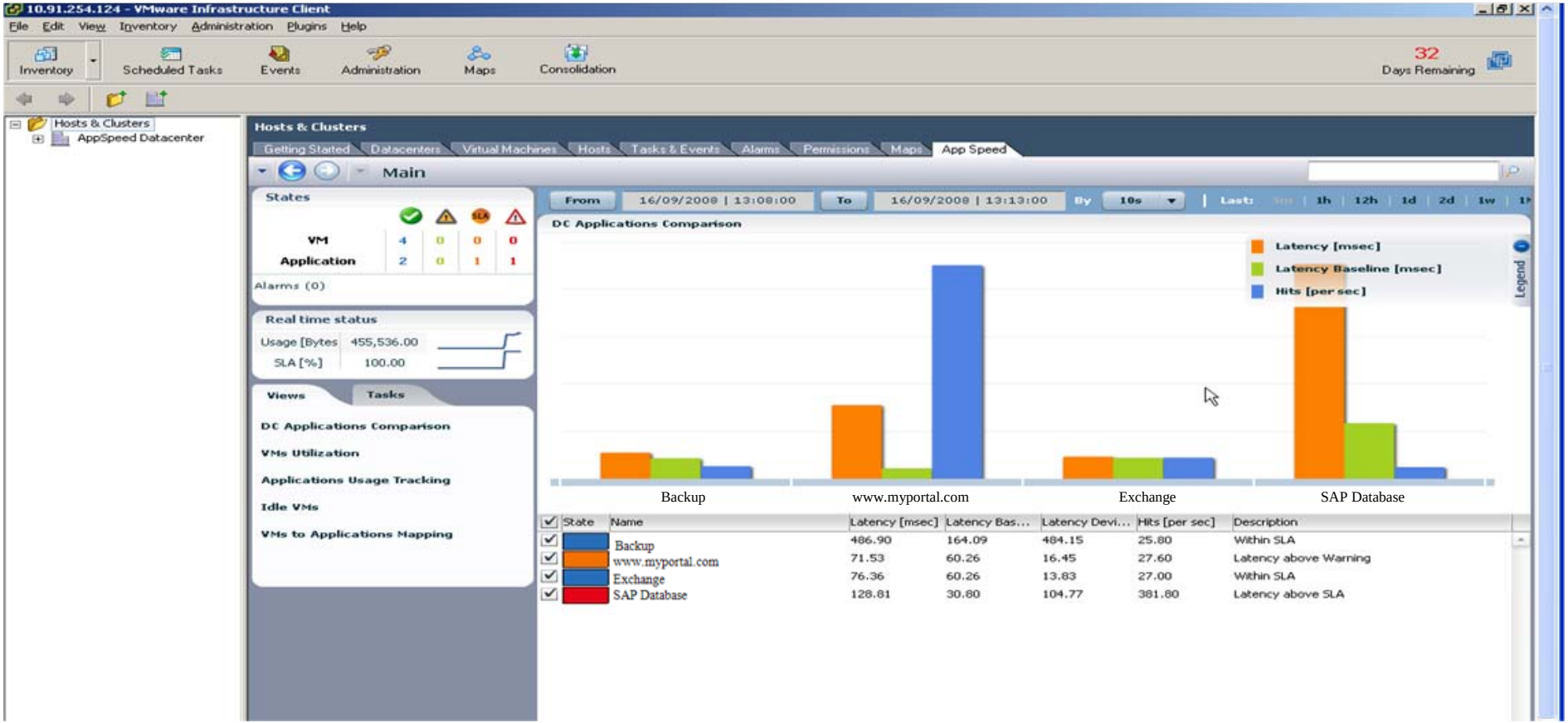
AppSpeed – SLA violation with the SAP Database



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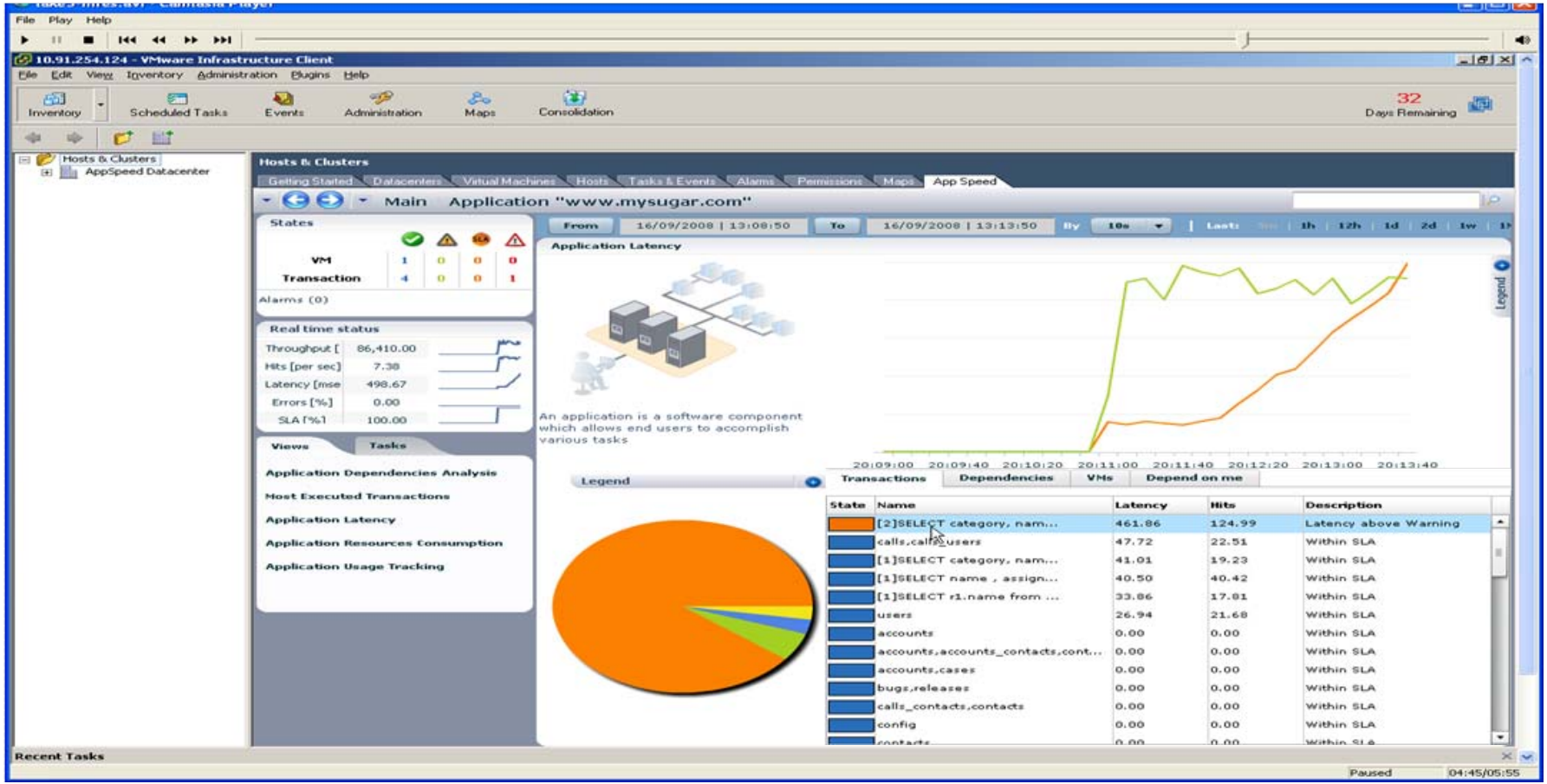
AppSpeed – Impacted Transactions Mapped to Database



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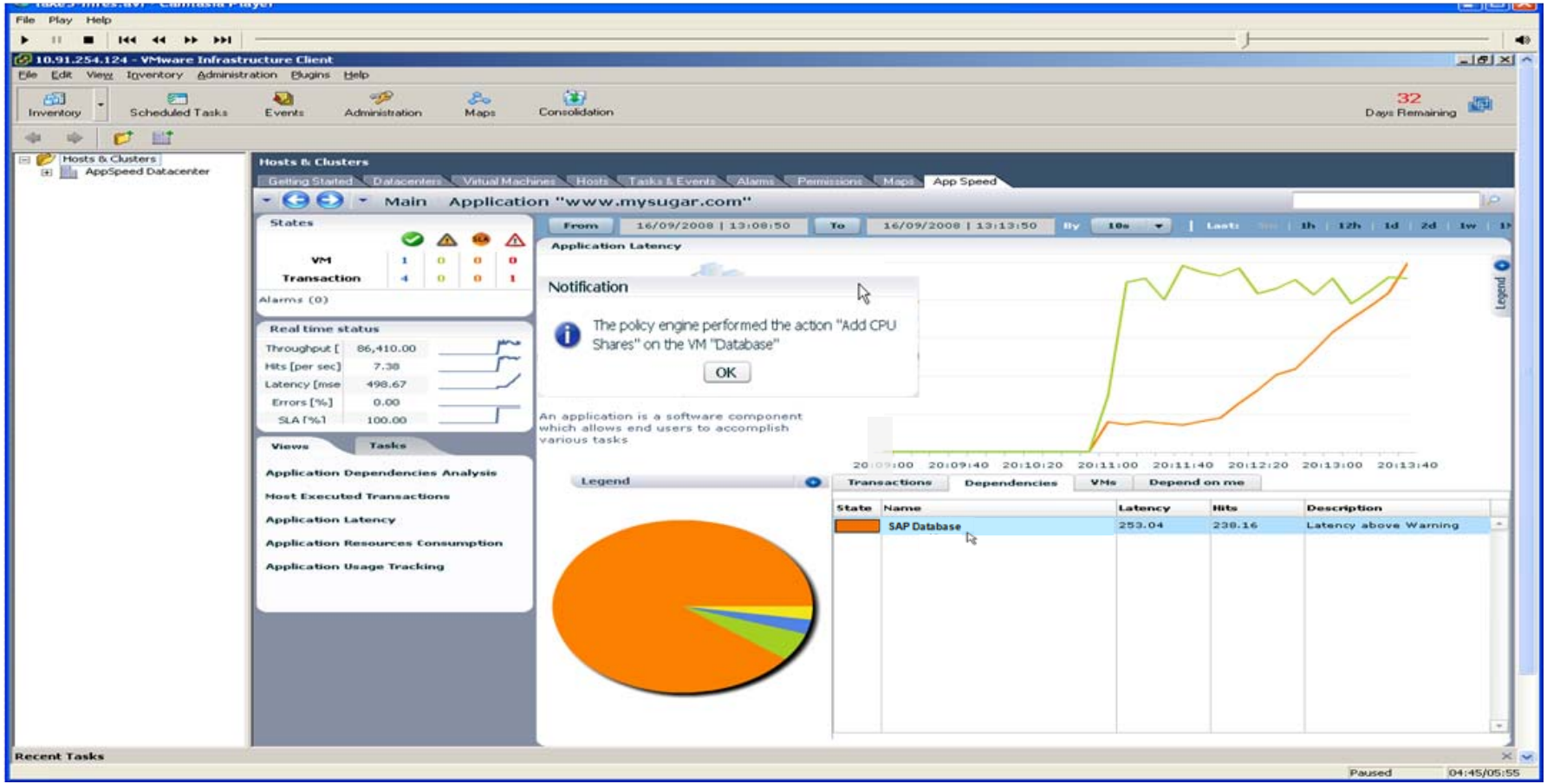
AppSpeed – Policy triggered



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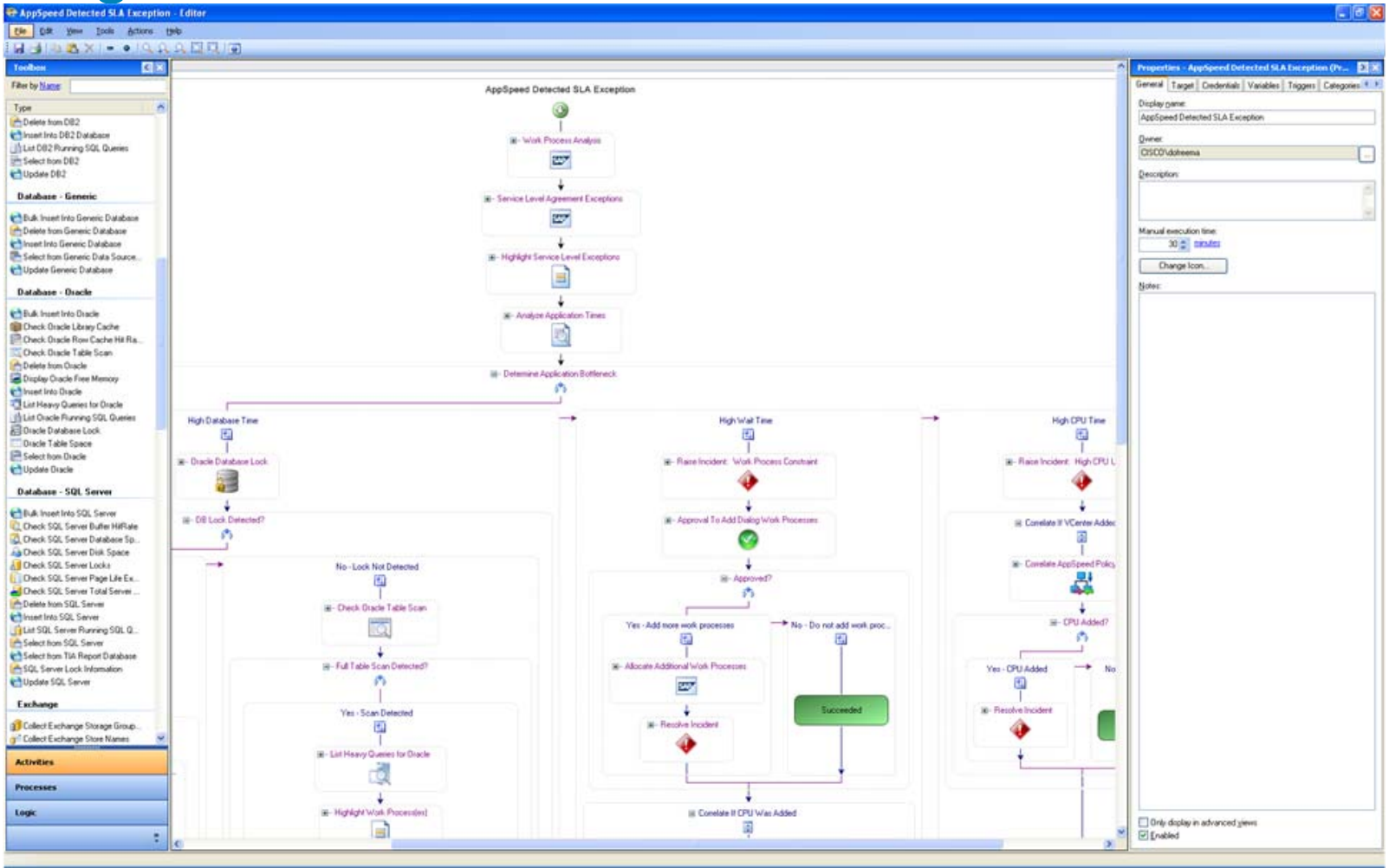
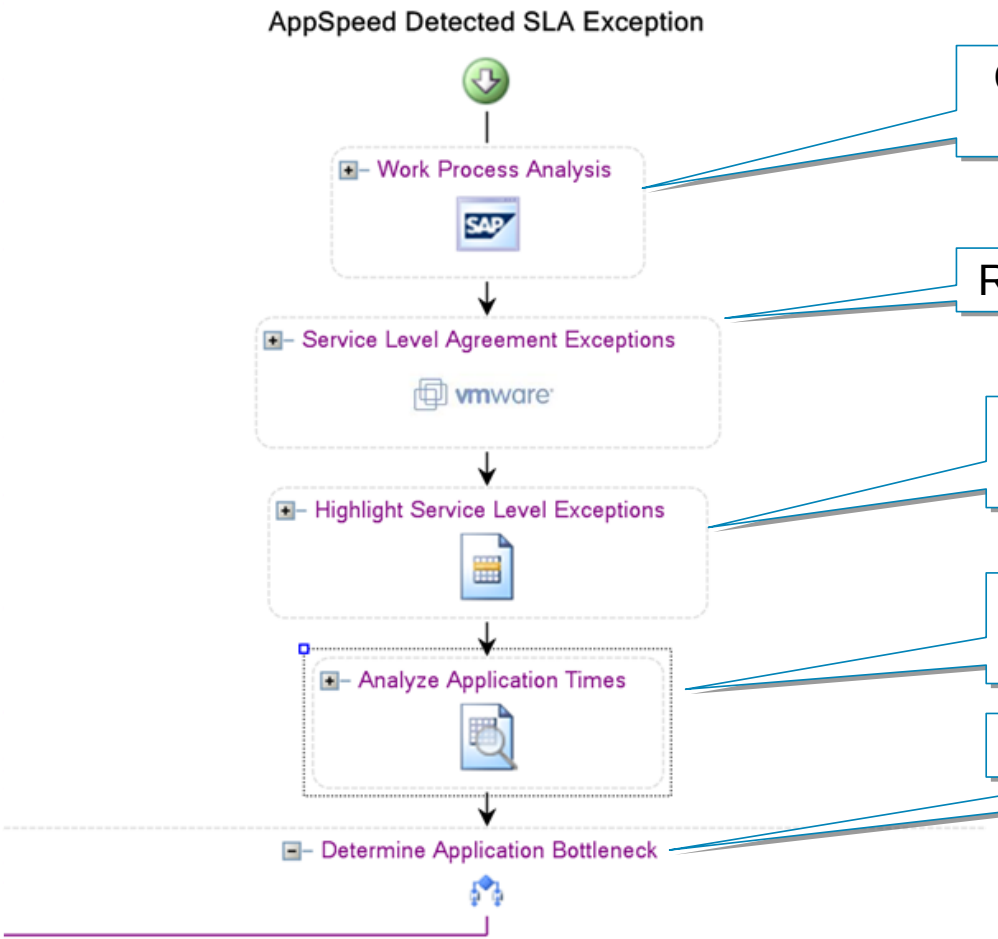
AppSpeed SLA Violation Triggers Cisco's Tidal Intelligent Automation



Application Specific - Initial Diagnosis



Collect transient application-specific data for diagnosis

Retrieve transactions from AppSpeed

Highlight the transactions that exceeded the SLA

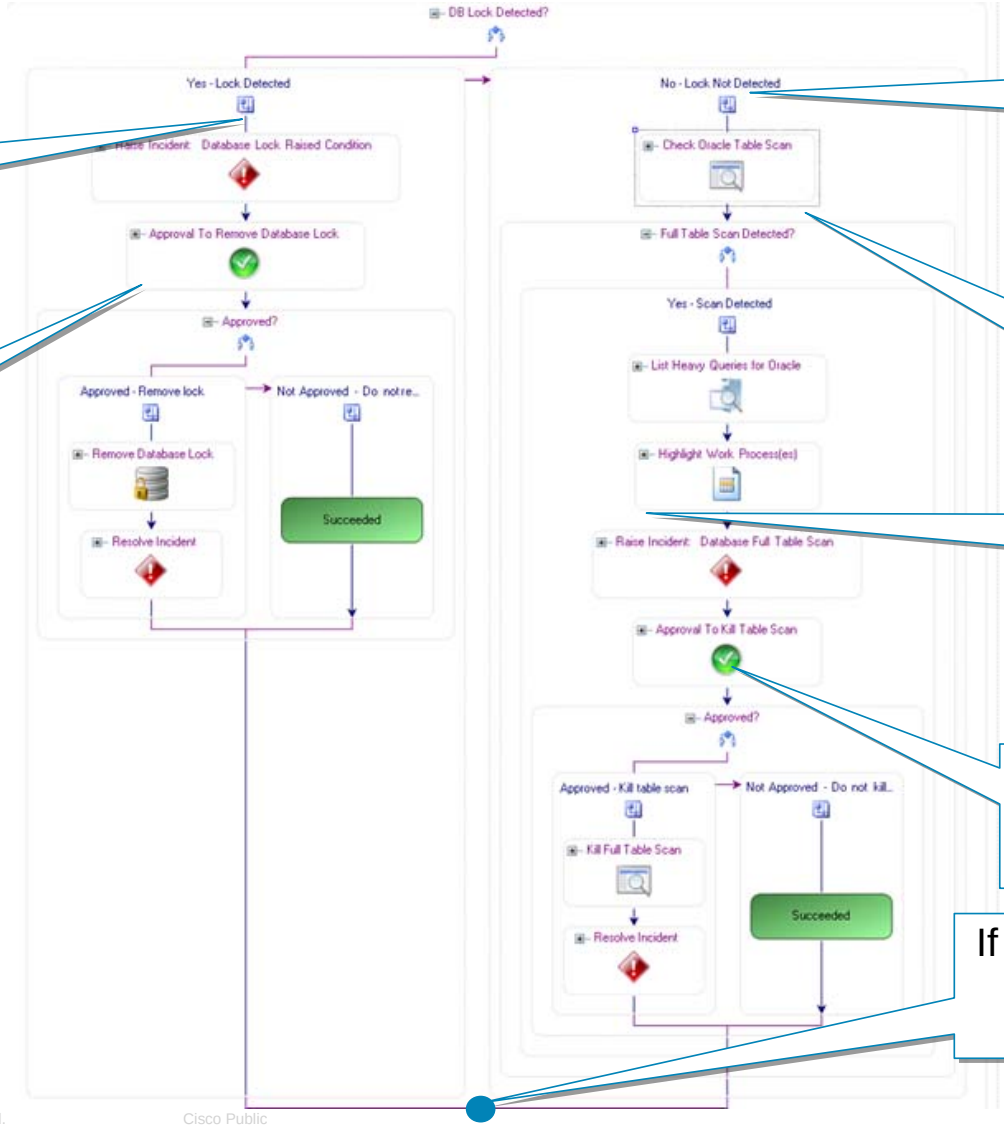
Check where AppSpeed isolated issue (Application, Database, etc.)

Branch based on initial diagnosis

If Database

Database deadlock detected so raising incident

Approval to execute corrective actions to remove the database lock



No Lock detected. However ….

Process is executing an expensive table scan

Identify the work processes executing the scan

Raise incident and seek approval to kill full table scan

If the incident is resolved, release the additional CPU

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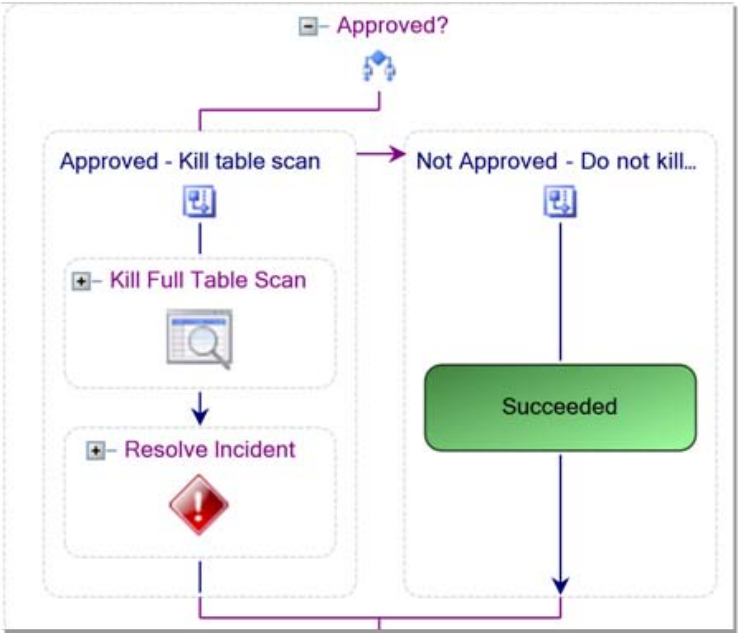
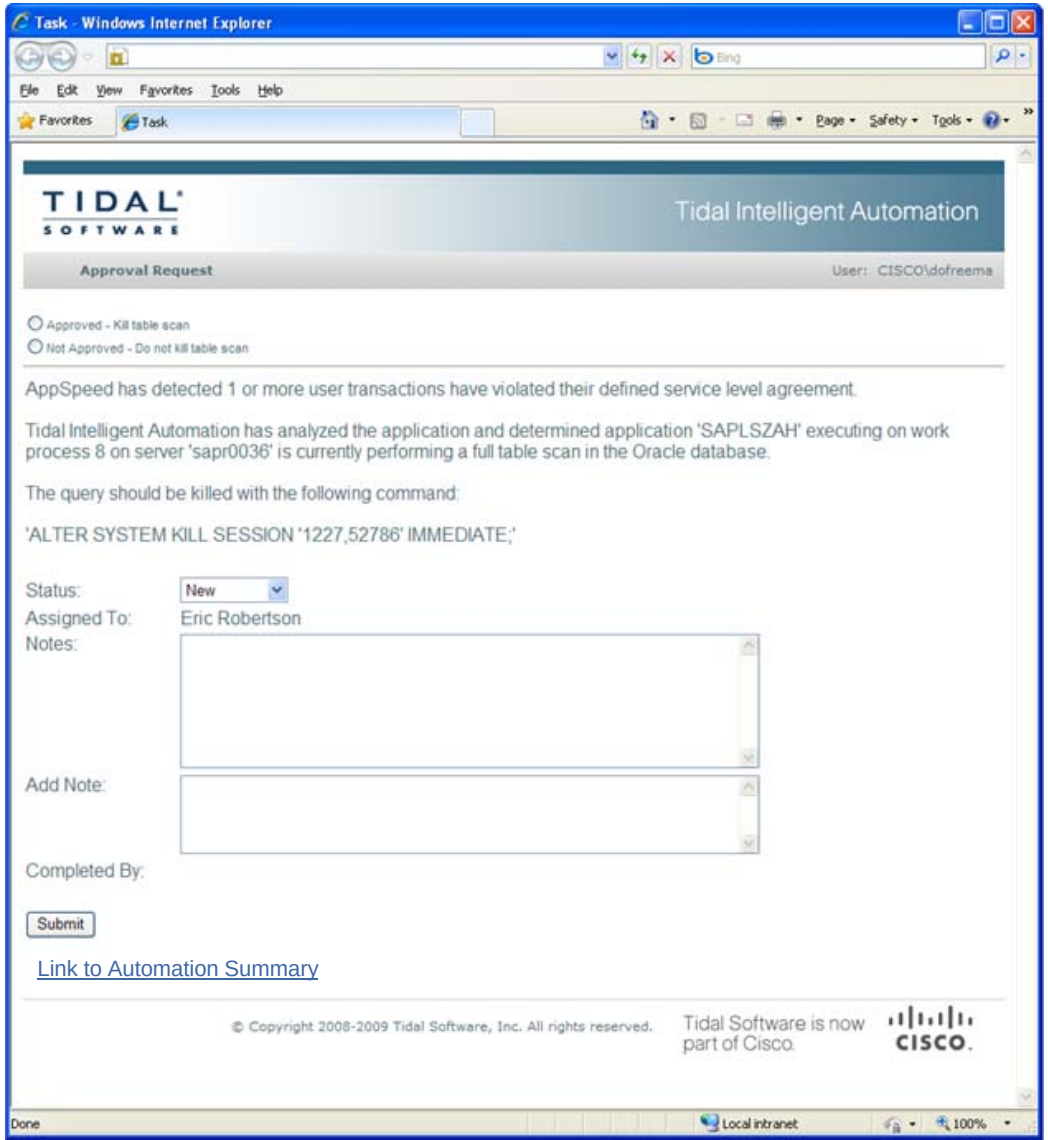
Approval





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Tidal Intelligent Automation Summary - Windows Internet Explorer

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Favorites | Tidal Intelligent Automation Summary

Page Safety Tools

TIDAL HORIZON

Diagnostic Report

Problem: Database Full Table Scan

AppSpeed has detected 1 or more user transactions have violated their defined service level agreement.

Tidal Intelligent Automation has analyzed the application and determined application 'SAPLSZAH' executing on work process 8 on server 'sapr0036' is currently performing a full table scan in the Oracle database. The query should be killed with the following command:

'ALTER SYSTEM KILL SESSION '1227,52786' IMMEDIATE;'

To view **situation analysis** click here. To learn more about situation analysis click here.

To view **context analysis** click here. To learn more about context analysis click here.

Summary
A poor performing SQL query is impacting 1 or more user transactions. Tidal Intelligent Automation (TIA) and AppSpeed have identified the user transactions impacted. The combined results are listed in the 'Service Level Agreement Exceptions Identified By AppSpeed and TIA ' section of the report.

Possible Cause
TIA has analyzed active work processes and identified an application performing a full table scan in the application database.

Possible Resolution
Kill the database process. Execute the command listed in the alert description in Oracle SQL Plus or other Oracle query tool. The syntax of the command is:

ALTER SYSTEM KILL SESSION 'SID,serial#' IMMEDIATE;

Where SID is the Oracle session ID and serial# is the serial number of the database query. This information can be found in the results of the 'List Heavy Queries for Oracle' section below.

Related Information

Did you find this report useful? Email your comments and suggestions to Tidal Software.

Situation Analysis

Back to the top

Work Process Analysis	8/11/2009 7:01:00 PM
Test Result	**Analysis of application work processes impacting the database.**

sapr0036_PRR_01	sapr0036	28	DIA	20579	Yes	0	waiting					0			
sapr0036_PRR_01	sapr0036	29	DIA	20580	Yes	0	waiting					0			
sapr0036_PRR_01	sapr0036	30	DIA	20581	Yes	0	waiting					0			

This SM50 Work Process Overview is a snapshot of the SAP work processes immediately after the dialog timed out. The workflow will delay 3 minutes to give SAP and the database time to clean up all processes. A highlighted row in the SM50 snaphot is a work processes identified as having an orphaned database process.

List Heavy Queries for Oracle — 8/11/2009 7:04:25 PM

Test Result

SID	SerialNum	OracleUser	Machine	PID	Terminal	Duration	SQL	CPU	BufferGets	DiskReads	ParseCalls
93	18352	prradm	sapr0036	3764	UNKNOWN	0	SELECT * FROM	15604570000	62457452	2467237	369
944	26842	prradm	sapr0036	20568	UNKNOWN	0	SELECT "CA_STAT	273700000	982455	151324	17359
1246	54788	prradm	sapr0036	3763	UNKNOWN	0	SELECT /*+ FIRS	2149540000	7631407	1069755	62714
65	179	prradm	sapr0036	1384	UNKNOWN	0	SELECT * FROM	43460110000	308963818	17579781	4968
1213	2037	prradm	sapr0036	27570	UNKNOWN	0	SELECT "MANDT"	196751940000	-1299412264	1441	10273
1215	42410	prradm	sapr0036	26950	UNKNOWN	0	SELECT /*+ FIRS	377960000	1585333	160665	37430
345	40981	prradm	sapr0036	919	UNKNOWN	0	SELECT "DRUCKDA	15337580000	28677196	15562905	1
1040	10874	prradm	sapr0036	22328	UNKNOWN	1	SELECT * FROM	3299310000	33824076	168675	1
559	37347	prradm	sapr0036	20517	UNKNOWN	63	SELECT "MANDT"	20000	2	1	1
61	16347	prradm	sapr0036	13315	UNKNOWN	530	SELECT * FROM	11221480000	160878514	10140628	56
1227	52786	prradm	sapr0036	11316	UNKNOWN	854	SELECT /*+ FIRS	288660000	555436	541527	2

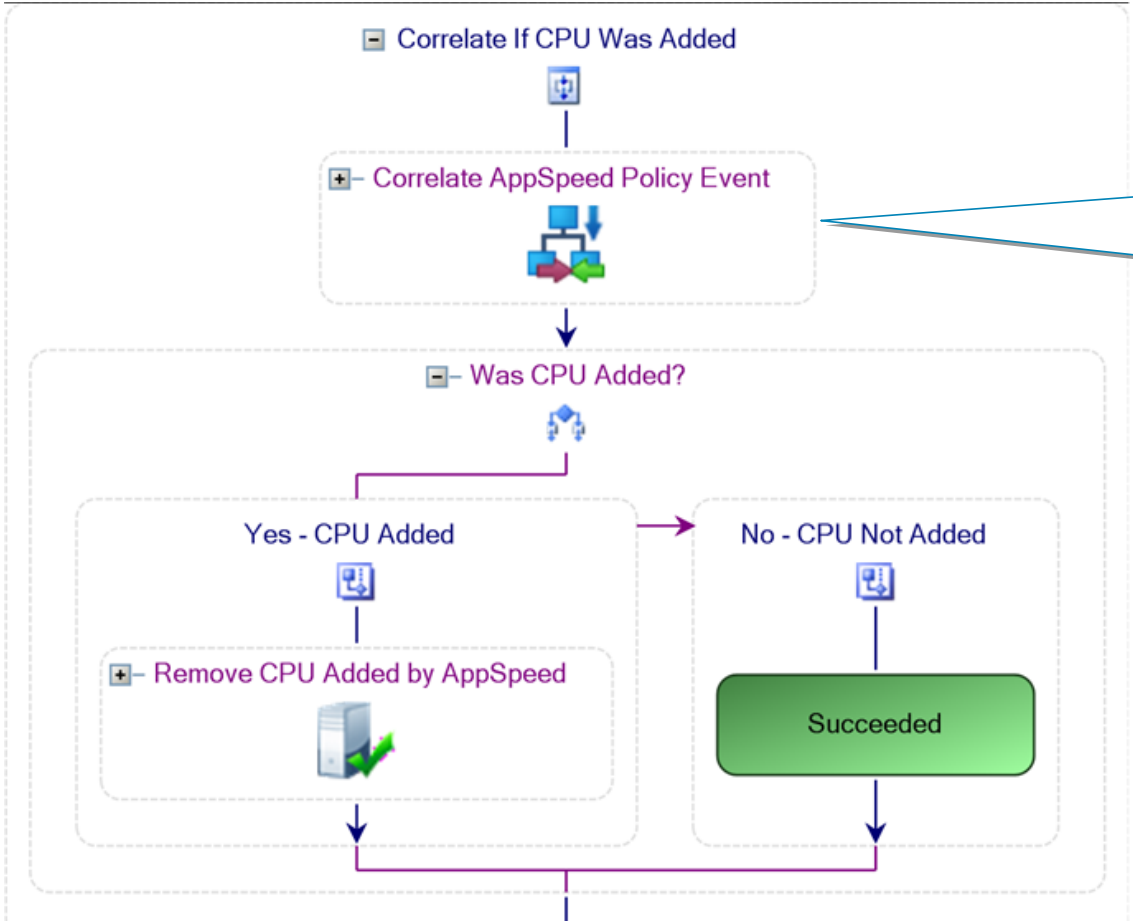
This section will show all active database queries from the SAP application server where the dialog work process timed out. A highlighted query indicates the database query cannot be associated with an SAP work process and has possibly been orphaned. Review the SM50 Work Process Overview snapshots above to identify the user and program that caused the problem. Use the operating system PID to verify the database process is an orphan.

Service Level Agreement Exceptions Identified By AppSpeed and TIA — 8/11/2002 7:01:35 PM

Test Result Highlighted transactions have exceeded their service level agreements.

Server	Transaction	Program	Avg. Response time (ms)	Avg. Time in WPs (ms)	Avg. Wait time (ms)	Avg. CPU time (ms)	Avg. DB req. time (ms)	Avg. Load + Gen time (ms)
sapr0005_PRR_00		<adm message>	0.333333333333333	0	0	0	0	0
sapr0005_PRR_00		<no buffer>	30.5	30.1086956521739	0.0434782608695652	2.17391304347826	19.3913043478261	0
sapr0005_PRR_00		<update administration>	0	0	0	3.33333333333333	0	0
sapr0005_PRR_00	SE16	/1BCDWB/DBERDK	54813	54813	0	25	54790.5	1.5
sapr0005_PRR_03		<adm message>	2.09090909090909	1.54545454545455	0.0909090909090909	0.909090909090909	0	0
sapr0005_PRR_03		<no buffer>	15.5789473684211	15.2781954887218	0.0075187969924812	1.2781954887218	4.71428571428571	0
sapr0005_PRR_03		<update administration>	0	0	0	0	0	0
sapr0005_PRR_05		<adm message>	0.6	0	0	0	0	0
sapr0005_PRR_05		<no buffer>	11.25	10.75	0	2.5	4	0
sapr0005_PRR_05		<update administration>	0	0	0	0	0	0
sapr0030_PRR_01	EG35	SAPLE30D	338	336.5	1.25	135	201.5	10.25
sapr0030_PRR_01	EL01	REATRMSA	31.1666666666667	31.1666666666667	0	25	7.33333333333333	3
sapr0030_PRR_01	EL01	SAPLEL01	66411.3333333333	66408.6666666667	2.33333333333333	63.3333333333333	66345.6666666667	5
sapr0030_PRR_01	EL31	RELEABL3	380	379.5	0	230	99.5	15.5
sapr0030_PRR_01	EL31	RELEABL7	52	52	0	40	12	6
sapr0030_PRR_01	EMMACLS	RBDMANI2	10127.75	10089.5833333333	38	792.5	9252.08333333333	38.75

Conditionally Release CPU Added by AppSpeed Policy



Correlate a policy event from AppSpeed within 30 seconds of the SLA violation

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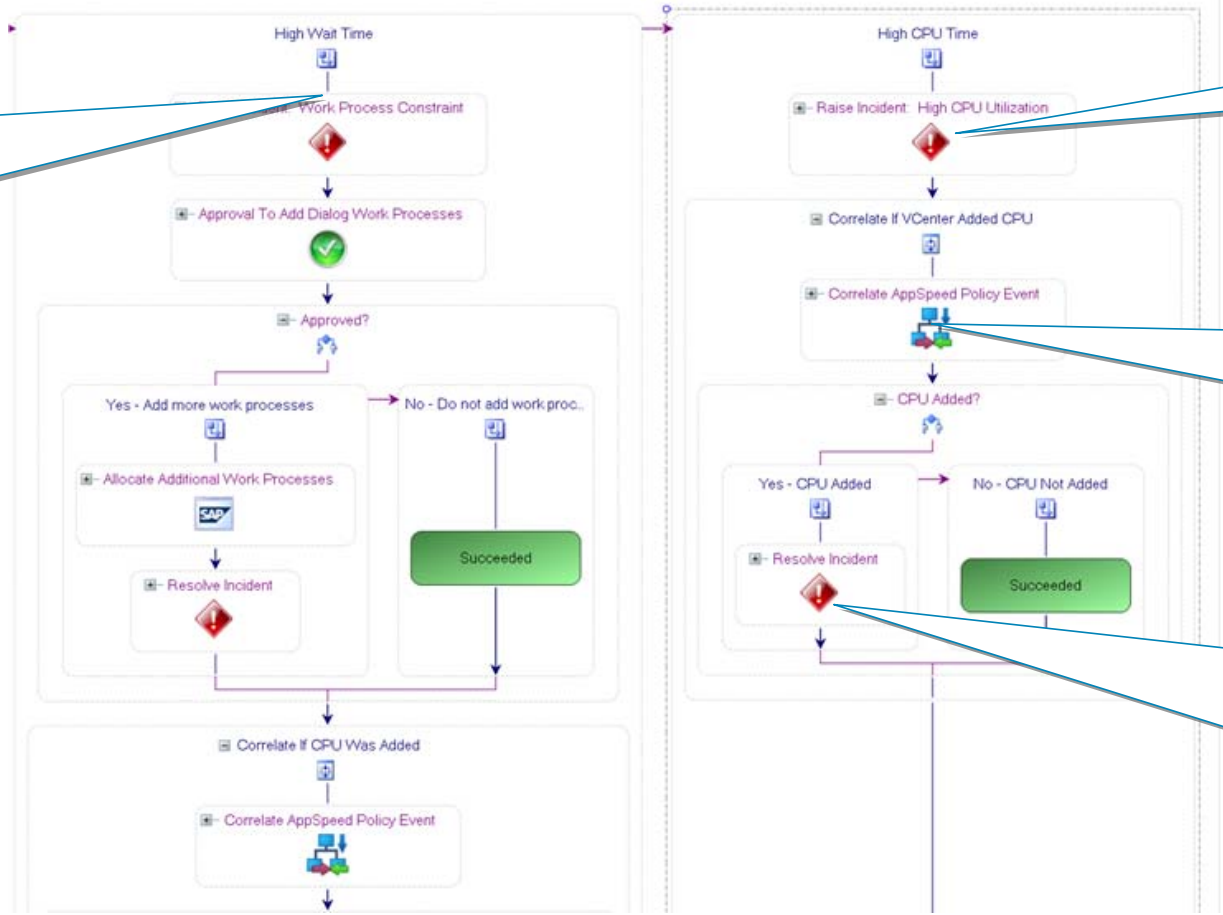
If Problem is Application Latency

SAP wait times can be high if there are not available work processes



Raise Incident if high CPU

Determine if AppSpeed policy automatically added CPU by correlating AppSpeed events

Adding CPU is the appropriate response, this is already done, so close incident; thereby, accelerating MTTR

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In Summary

- Cisco’s Tidal Intelligent Automation platform delivers application performance management and data center automation

- VMware Appspeed integration to Cisco’s Tidal Intelligent Automation improves support and operations of your virtualized and physical applications

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www.cisco.com/go/vmworld09

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