

IBM Technical Summit 2013



见智, 见未来

IBM 2013技术峰会

2013年7月11日 - 12日 • 国家会议中心



云和共享基础架构性能的管理、监控和优化

Wei Min

SWG Cloud & Smarter Infrastructure



Visibility. Control. Automation.TM



日程

1 面向共享基础结构的 IT 转型

2 智能化管理

- 基础架构监控
- 应用性能管理
- 业务服务管理

3 小结



1

面向共享基础结构的 IT 转型



IBM 2013技术峰会

集成服务管理支持 IT 成功向云和共享基础结构转变



可视性

实时观察并了解业务情况



可控化

转型并适应变化,
同时控制风险



自动化

通过标准化最佳实践
提高效率和质量

业务服务和资产



向智慧的灵活基础
结构转变



汇聚数字资产与实
物资产



利用移动和 Web
端点



处理数据增长、
威胁以及合规性

难以解决的问题



基础架构团队



如何在虚拟化环境中隔离问题, - 虚拟服务器、存储、网络环境……

如何监控可用性, 并管理动态IT基础结构、事件、网络以及高度虚拟化环境的功能?

业务人员



如何根据业务重点及业务环境管理服务及底层的IT及网络基础结构?



应用运维团队

如何做容量规划以适应未来的业务增长?

如何确保IT基础设施很好的支撑业务的运行?

如何预知资源的瓶颈?

如何端到端监控、优化并分析应用程序性能、事务和流程?

企业云已经超出资源的承载能力 - 如何优化现有资源, 以更好的支撑业务?

如何提升虚拟化环境的管理能力, 如何在基础设施日益增长的环境下, 优化基础设施的供给。



IBM 2013技术峰会

为了解决应用性能问题所带来成本增长直线飙升.....

Online Outage On Black Friday

(AP) High traffic disrupted Wal-Mart Stores Inc.'s Web site for much of Friday, one of the year's busiest shopping days.

The Walt Disney Co. also had problems handling the rush of online activity Friday, while Amazon.com Inc.'s site had brief disruptions a day earlier due to a Thanksgiving Day sale on Microsoft Corp.'s Xbox 360 video game machines.



“应用程序性能问题会对企业收入产生高达9%的影响。”

“研究表明, 应用程序性能欠佳会直接造成收益损失”- Network World

Computer Glitch Delays IRS Rebate Checks

Computer glitch dumps kids from state health insurance

By DEBORAH CIRCELLI
Staff writer

DAYTONA BEACH - Computer errors in a state health insurance

“近60%的受访者表示无法在最终用户受影响之前发现问题.....”“研究表明, 应用程序性能欠佳会直接导致收益损失”, Network World

...one or that their insurance was up for renewal. In other cases, documents were needed to continue their coverage.

InformationWeek

BestBuy.com Experiences Overnight Web Site Outage, According To Monitor Service

December 15, 2006, InformationWeek

BestBuy's Web site response times have been climbing as holiday shopping has become more popular in December, according to WebSitePulse.com.

By Charles Babcock
InformationWeek

“企业将54%的时间用于停运检测和识别。”

— EMA Decreasing IT Operational Costs by Accelerating Problem Resolution, EMA

Last Updated: Monday, 3 January, 2005, 18:31 GMT

E-mail this to a friend

Printable version

System glitch hits HSBC customers

HSBC customers faced chaos in the UK on the New Year public holiday as the bank suffered a major breakdown in services.



Bargain hunters may have been hit by HSBC's problems

A computer glitch meant customers were unable to get money from cash machines or use credit cards and Switch cards.

People were also unable to access their personal accounts

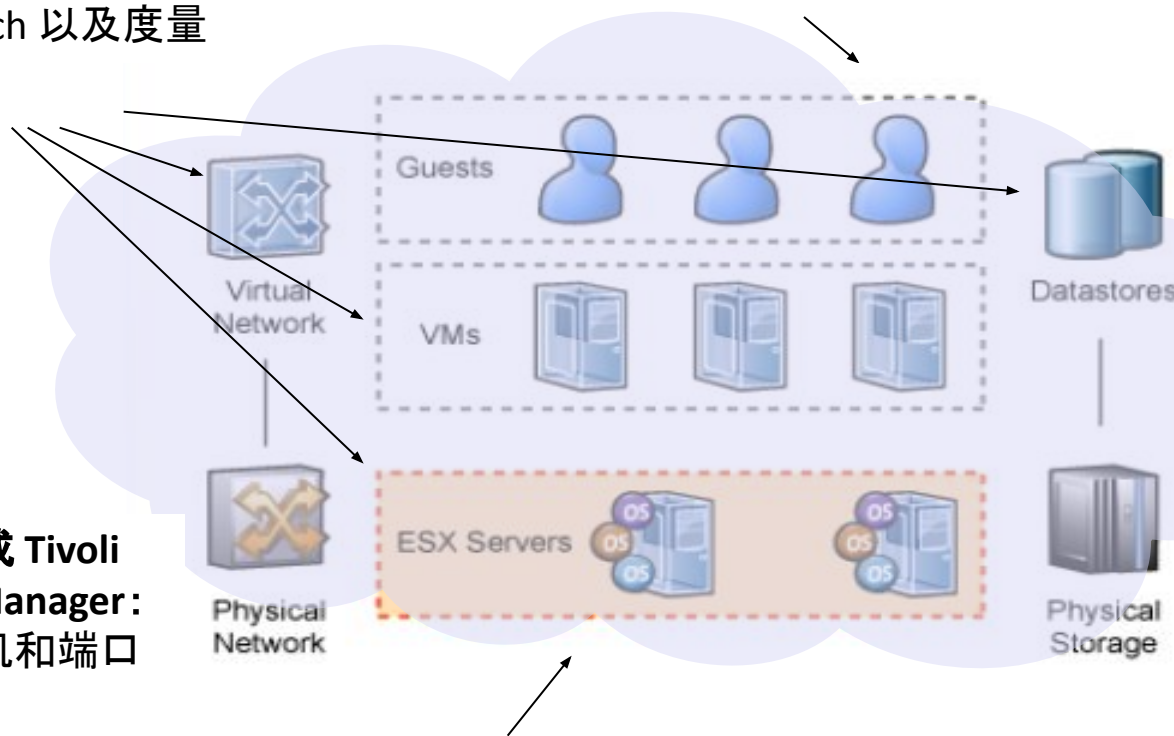
A spokeswoman for HSBC said the glitch was the most serious the bank had experienced in its history, but most problems had now been resolved.

IBM 2013技术峰会

在单一仪表板中全面监控计算存储网络基础结构中的云和虚拟化资源

系统管理程序: 集群、主机、VM CPU/内存度量、数据存储使用率、NIC、vSwitch 以及度量

操作系统: 操作系统度量提供过程数据; 仅从访客/VM 角度看到利用率



网络设备或 Tivoli Network Manager: 物理交换机和端口监控

存储器: 提供关于物理存储器的运行状况; 存储分析

帮助快速隔离问题与综合监测和跨物理和虚拟环境中, 操作系统, 服务器, 网络和存储的健康信息, 提供仪表板和基于上下文的关联诊断

硬件: 提供关于硬件的详细运行状况。虚拟中心内显示一些硬件事件



可视化, 可控化, 自动化提升运维管理水平



可视化 VISIBILITY

See services in real time & better predict business outcomes



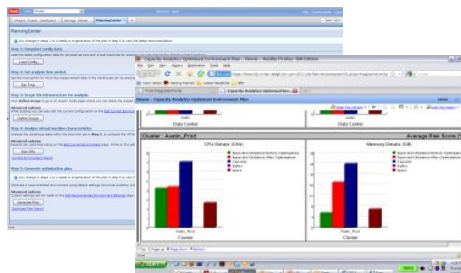
可控化 CONTROL

Better manage assets, service & compliance.



自动化 AUTOMATION

Achieve greater efficiency and service quality



缩减 MTTR 时间提升整体的服务可用性

分析和优化基础资源, 减少服务器的数量和license费用, 降低服务器维护成本

自动化响应运维中遇到的性能, 可用性问题, 提供运维效率

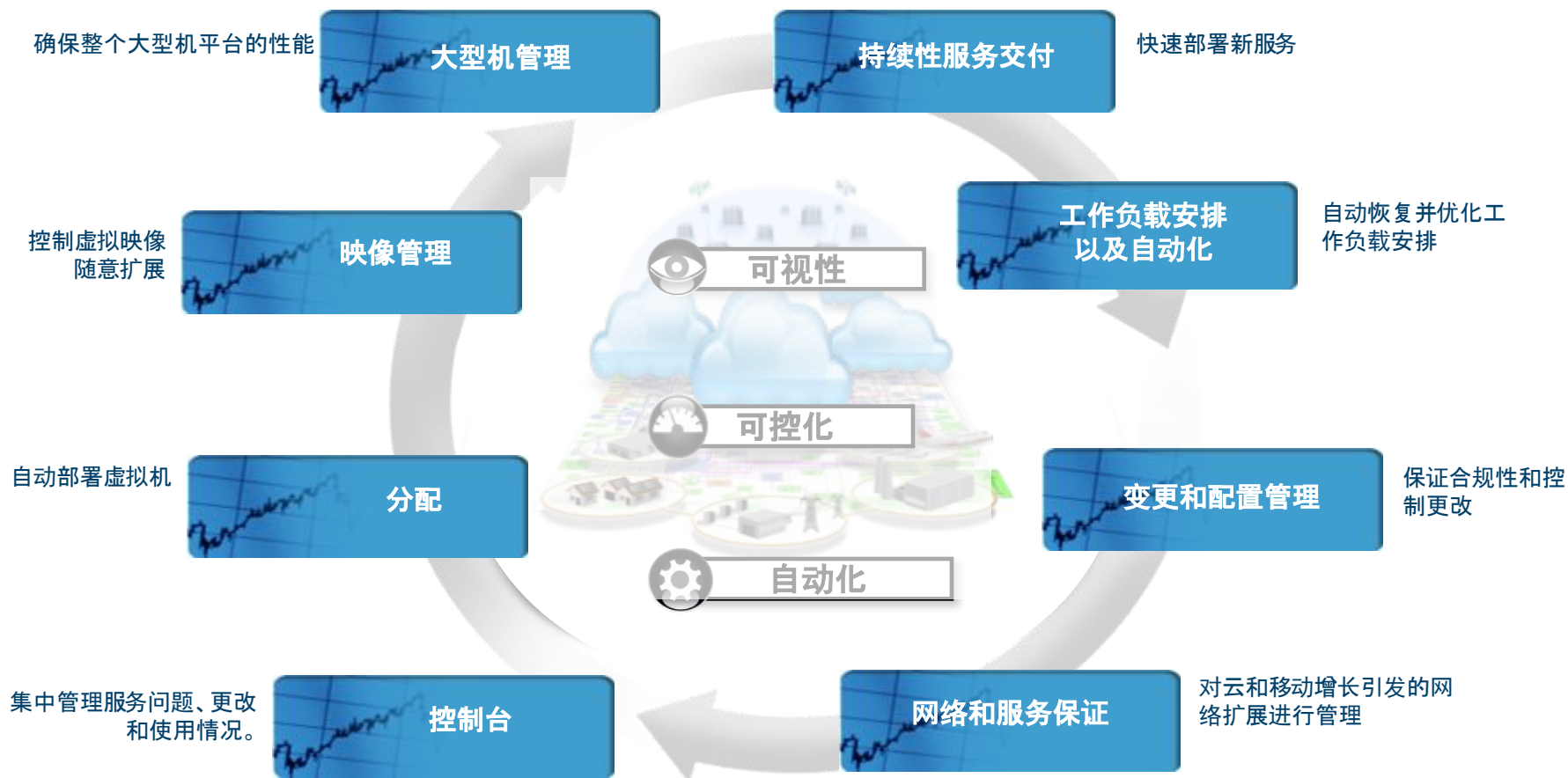


2

智能化管理



IBM提供端到端的服务管理解决方案



管理并优化云和共享基础结构的性能

提高了云运行状况的可视性

- 跟踪云服务级别、性能, 并在客户受到影响之前预测云问题
- 了解当前性能和容量, 并预测到数月后的情况

降低总体运营成本

- 优化工作负载布局, 充分利用云投资并获得最佳绩效
- 使用异构云基础结构监控解决方案, 避免了昂贵的系统管理程序或操作系统锁定

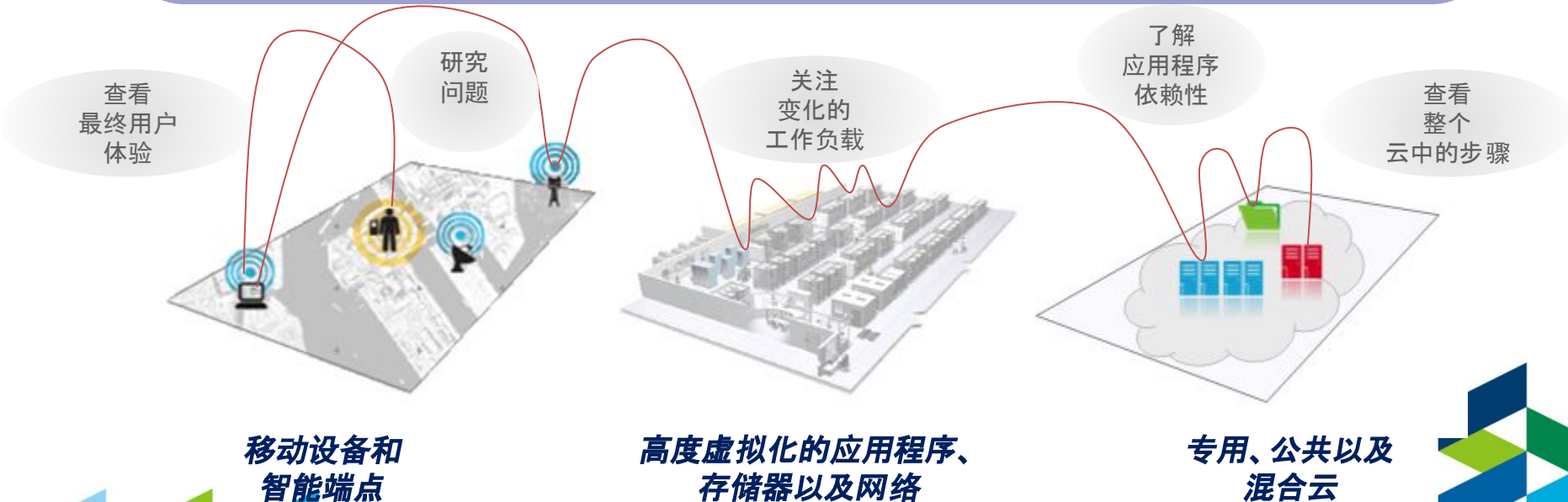
优化云性能

- 内置性能分析可以精简云中的虚拟机并优化资源
- 实时主动警报可迅速发现并纠正问题



IBM 2013技术峰会

IBM SmartCloud Application Performance Management 提供在应用程序环境中优化性能、管理风险以及减少成本所需的可行性建议



IBM 2013技术峰会

通过分析积极缓解风险，获得相关洞察来优化操作并降低持有成本



通过预测性分析进行**预测**和**趋势研究**, 为资源需求以及容量和可用性提出深远建议, 并发现潜在风险。

- 100多个开箱即用的告警场景, 用于探测异常的发生
- 开箱即用的容量未来趋势报告, 用于防范与未然

通过动态阈值管理来根据季节变化调整策略。

动态基线, 帮助客户制定更合理的告警阈值

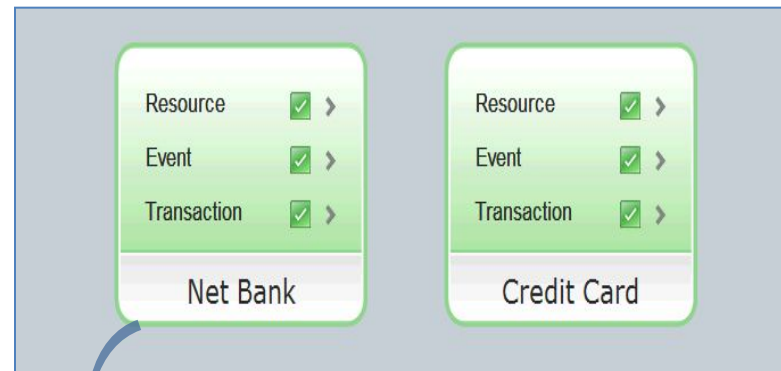
通过简单的临时以及计划的**报告**, 对多种度量和数据源进行比较。

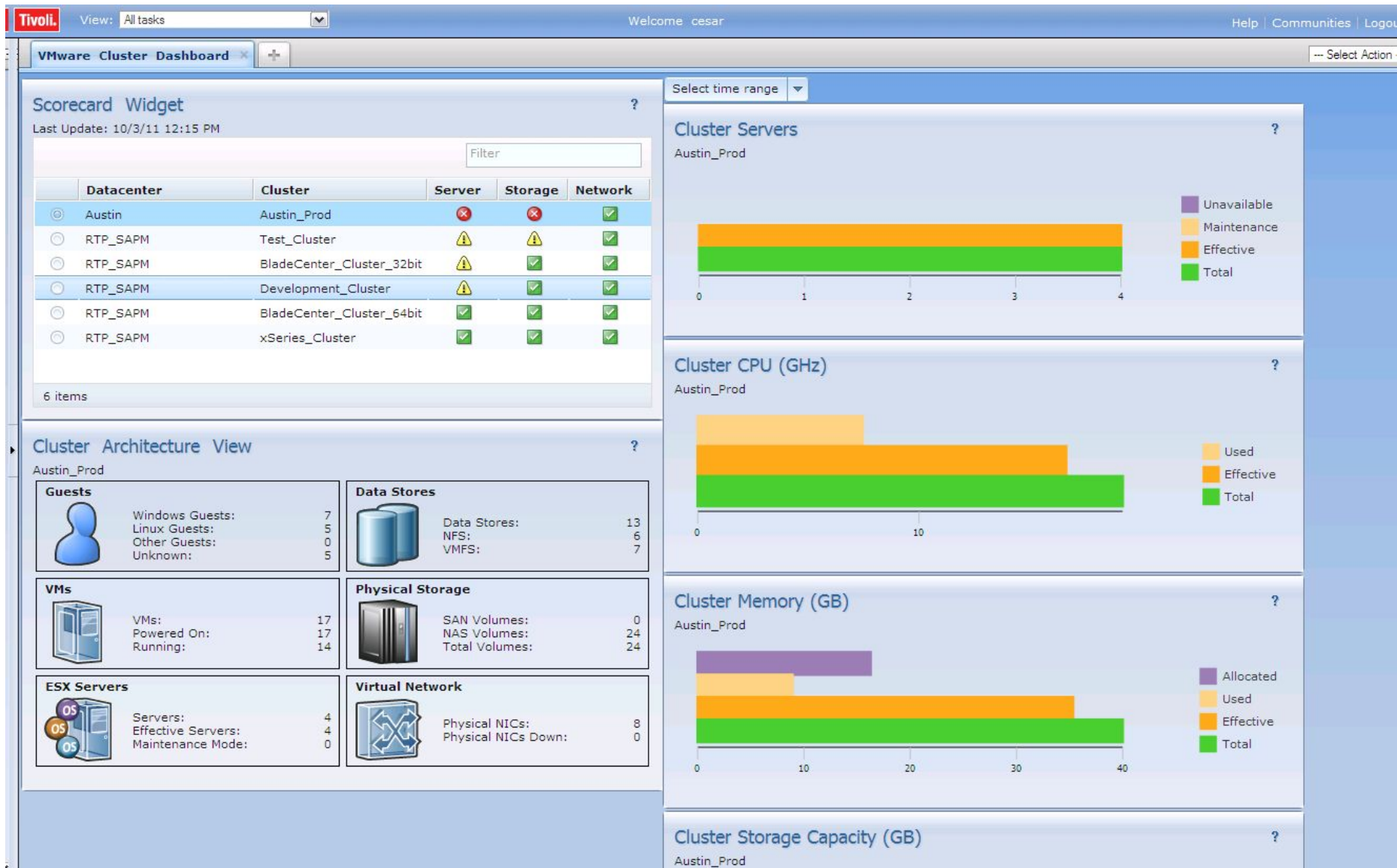
通过使用引导性技术以及**行为学习**能力, 提供全面准确的诊断。

通过先进的关联及模式识别, 实时发现并解决复杂且难以检测到的事件

极大简化应用程序环境的可视性

- 通过智能研究获取对最终用户体验管理的猜测结果
- 易于了解的仪表板跟踪可用性、性能和容量
- 用于操作员和应用程序开发团队的特定于角色的屏幕
- 基于最佳实践而构建, 易于通过各种窗口小部件进行定制
- 在智能设备上运行



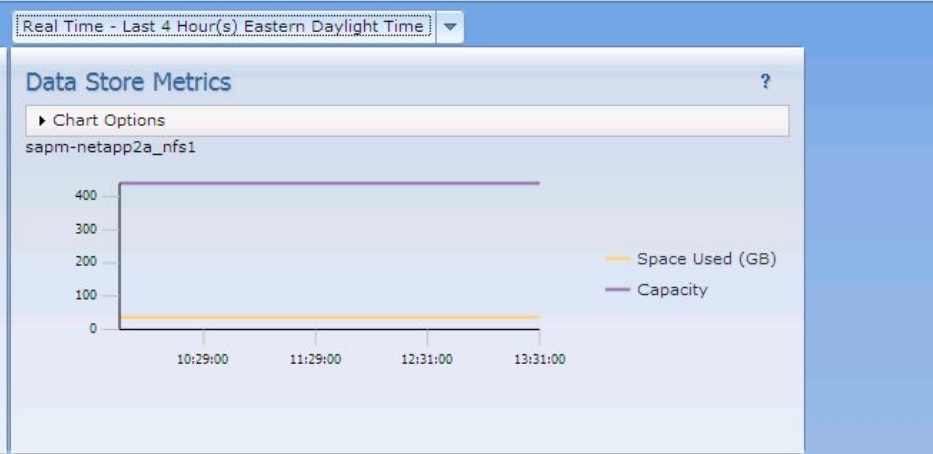


Austin_Prod : Austin

Data Stores

Name	Status	Used Space(%)	Used(GB)	Total Capacity (GB)	Percent Overcommitted
sapm-netapp2a_nfs1	✓	9%	36.67	440	-70.81
sapm-netapp2_nfs	✓	61%	365.5	600	—
LinZigZagPart09	✓	58%	117.11	203	—
sapm-netapp1_home	✓	2%	1.4	95.61	—
sapm-netapp2a_nfs2	✓	21%	32.82	160	—

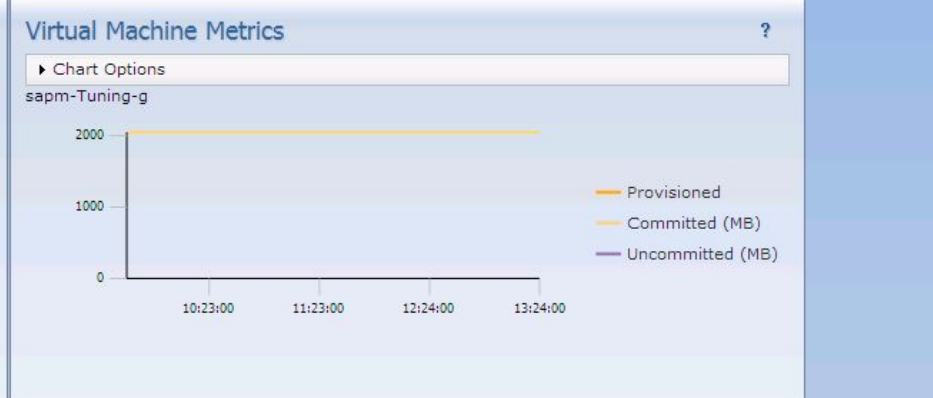
13 items



Virtual Machines

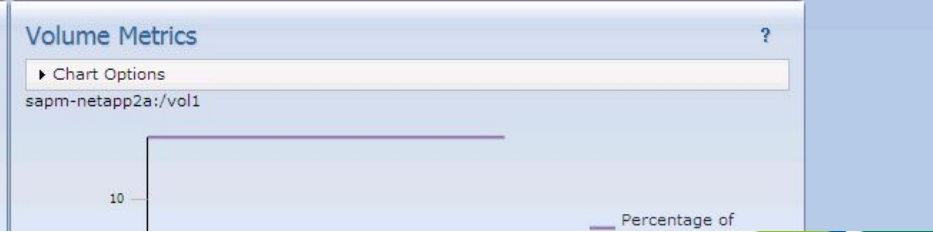
VM Name	Server	Overall Status	Provisioned (MB)	Committed (MB)
sapm-Tuning-g	absm-365b.tivlab.raleigh.ibm.	✓	—	2,048
sapm-rhx32d	absm-365b.tivlab.raleigh.ibm.	✓	256	256
SAPM-Tuning-f	absm-365b.tivlab.raleigh.ibm.	✓	—	256
SAPM-Tuning-a	absm-365b.tivlab.raleigh.ibm.	✓	352	352
sapm-rhx32m	benblade06.tivlab.raleigh.ibm	✓	—	2,048

5 items



Volumes

Volume Type	Name	Size(GB)	Status	Used Space(%)	Used(GB)	Read Latency
NAS	sapm-netapp2a:/vol1	440	✓	17.4	76.8	215.5



Tivoli. View: All tasks Welcome cesar Help | Communities | Logout

VMware Cluster Dashboard Storage Details

Austin_Prod : Austin Real Time - Last 4 Hour(s) Eastern Daylight Time

Data Stores

Name	Status	Used Space(%)	Used(GB)	Total Capacity	Percent
sapm-netapp2a_nfs1	✓	9%	36.6		
sapm-netapp2_nfs	✓	51%	365		
LinZigZagPart09	✓	58%	117		
sapm-netapp1_home	✓	2%	1.4		
sapm-netapp2a_nfs2	✓	21%	32.8		

Launch in context to ITM VMware VI agent datastore workspaces for additional details and problem resolution

Datstores - fac2w2k3.raleigh.ibm.com - SYSADMIN *ADMIN MODE*

Datcenter	Name	Overall Status	Type	Accessible	Capacity	Percent Used	Connected Hosts	Connected VMs	Connected Clusters
B-510	test_nfs	Unavailable	NFS	Yes	6272	100	1	7	1
B-510	ISCSI Disk 2	Unavailable	VMFS	Yes	476672	89	3	146	1
B-510	storage1 (1)	Unavailable	VMFS	Yes	411392	58	1	7	0
B-510	ISCSI Disk 1	Unavailable	VMFS	Yes	476672	56	3	22	1
B-510	ltn64vm6.storage1	Unavailable	VMFS	Yes	26880	46	1	2	0
B-510	storage1	Unavailable	VMFS	Yes	34560	42	1	2	1
B-510	joe_1	Unavailable	VMFS	Yes	34048	2	1	0	1
B-510	storage1 (2)	Unavailable	VMFS	Yes	31488	2	1	0	1

NAS Datstores

Datcenter	Name	Type	Remote Host Address	Percent Used
B-510	test_nfs	NFS	fac2k3.tivlab.raleigh.ibm.com	100

VMFS Datstores

Datcenter	Name	URL	Percent Used
B-510	ISCSI Disk 2	sanfs://vmfs_.../46715931-3bd36808-3113-000e0c4...	89
B-510	storage1 (1)	sanfs://vmfs_.../470a57f6-2-8ab9ca-9a15-001a6465...	58
B-510	ISCSI Disk 1	sanfs://vmfs_.../46715901-25a31b06-3cfe-000e0c4...	56
B-510	ltn64vm6.storage1	sanfs://vmfs_.../49dc8feb-a1add99c-fa05-00086ba3...	46
B-510	storage1	sanfs://vmfs_.../46642238-8a988a1c-51cc-000e0c42...	42
B-510	joe_1	sanfs://vmfs_.../49afe4cb-aa123aa9-777b-000e0c42...	2
B-510	storage1 (2)	sanfs://vmfs_.../467a71ef-c7753112-e00e-000e0c4...	2

Virtual Machines

VM Name	Server
sapm-Tuning-g	absm-365b.tivlab.rale
sapm-rhx32d	absm-365b.tivlab.rale
SAPM-Tuning-f	absm-365b.tivlab.rale
SAPM-Tuning-a	absm-365b.tivlab.rale
sapm-rhx32m	benblade06.tivlab.rale

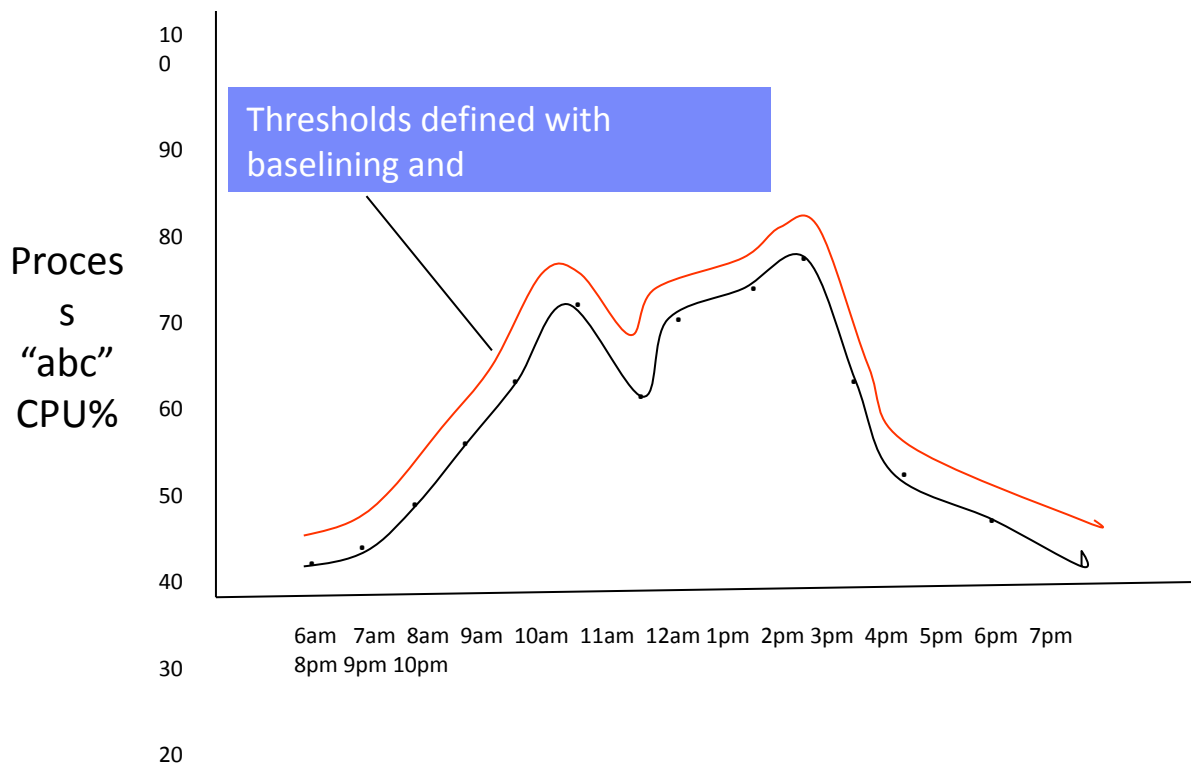
Volumes

Volume Type	Name	Size(GB)	Space(%)	Latency
NAS	sapm-netapp2a:/vol1	440	17.4	76.8

Data Store Metrics

Chart Options

Legend: Space Used (GB), Capacity, Provisioned, Committed (MB), Uncommitted (MB)



- **Customized to individual agent / resources**
- **Effective based on schedule**
- **Derived based on local needs and observations**
- **Derived based on history or Data warehouse analysis**
- **Derived based on external analytical product**

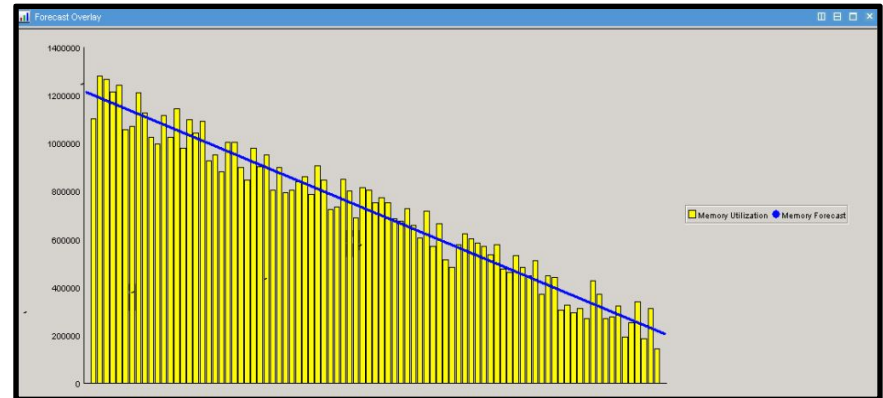
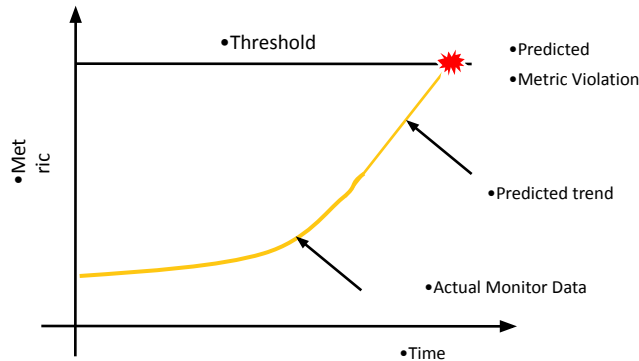
- ✓ Automated definitions with + or - variation
- ✓ Proactive warning when abnormal behavior occurs during nonpeak periods
- ✓ Automated updates when changes take place



• Leverage collected data to spot trends and highlight emerging concerns

- Hands off capacity monitoring
 - Automates performance analysis and reporting
- Prediction of application bottlenecks
- Ccreation of alerts for potential service threats.

- “What will my resources look like tomorrow, next week. next month or next year?”
- “What IT Resources should I worry about next?”
- “Will I have enough capacity to get me through Monday?”



Forecast Status			
System Name	Confidence	Strength	Number Of Samples
TestWinXP-7	48	1	89
TestWinXP-8	83	3	89
TestWinXP-9	87	3	89
TestWinXP-10	90	3	89
TestWinXP-4	100	3	89
TestWinXP-5	89	3	89
TestWinXP-6	86	3	89
TestWin2003-2	82	3	89
TestWin2003-3	89	3	89
TestWin2003-4	73	3	89

7 Day Forecast	
System Name	Data
TestWinXP-7	829
TestWinXP-8	3400
TestWinXP-9	3642
TestWinXP-10	4370
TestWinXP-4	2318
TestWinXP-5	2206
TestWinXP-6	925
TestWin2003-2	5094
TestWin2003-3	3430
TestWin2003-4	2519

30 Day Forecast	
System Name	Data
TestWinXP-7	987
TestWinXP-8	4231
TestWinXP-9	4484
TestWinXP-10	5395
TestWinXP-4	2870
TestWinXP-5	2718
TestWinXP-6	1151
TestWin2003-2	6185
TestWin2003-3	4229
TestWin2003-4	3135

90 Day Forecast	
System Name	Data
TestWinXP-7	1398
TestWinXP-8	6397
TestWinXP-9	6682
TestWinXP-10	8068
TestWinXP-4	4310
TestWinXP-5	4054
TestWinXP-6	1741
TestWin2003-2	9032
TestWin2003-3	6311
TestWin2003-4	4740

案例 1

发现, 并解决一个由存储容量带来的问题



Tivoli Integrated Portal

View: All tasks

Welcome bstern

Help | Communities | Logout

VMware Cluster Dashboard

Cluster Scorecard

Last Updated: 2011.06.16 09:14:05 Eastern Daylight Time

Datacenter	Cluster	Server	Storage	Network
Austin	Austin_Prod	✓	✗	✓
RTP_SAPM	Development_Cluster	✓	✓	✓
RTP_SAPM	Test_Cluster	✓	⚠	✓
RTP_SAPM	BladeCenter_Cluster_32bit	✓	✓	✓
RTP_SAPM	BladeCenter_Cluster_64bit	✓	✓	✓
RTP_SAPM	xSeries_Cluster	✓	✓	✓

6 items

Cluster CPU (GHz)

Austin_Prod

Category	Value (GHz)
Total	~40
Effective	~35
Used	~28

Cluster Memory (GB)

Austin_Prod

Category	Value (GB)
Total	~40
Effective	~35
Used	~10
Allocated	~20

Cluster Storage Capacity (GB)

Austin_Prod

Category	Value (GB)
Free	~1500
Used	~1000
Allocated	~2000

Cluster Architecture View

Austin_Prod

Category	Item	Count
Guests	Windows Guests	5
	Linux Guests	3
	Other Guests	0
Physical Network	Switch Port	24
	Switch Port Down	0
	Switch	Cisco
	Switch Down	No
VMs	VMs	8
	VMs Powered On	8
	Running VMs	8
	vNICs	12
Virtual Network	vNICs Down	0
	pNICs	8
	pNICs Down	0
	Datstores	8
ESX Servers	Servers	4
	Effective Servers	4
	In Maintenance mode	0
Physical Storage	IBM Devices	2
	NetApp Devices	3
	Hitachi Devices	0
Datstores	Hosts Connected	4
	NFS Based	4
	VMFS	2
Physical Storage	EMC Devices	0

•22

•1. Storage problem in Austin_Prod

•3. Click to drill down

•2. Overall, Cluster storage has available space. Will need to drill down to datstores to find out where the problem is.

Tivoli Integrated Portal | View: All tasks | Welcome bstern | Help | Communities | Logout | IBM.

VMware Cluster Dashboard | **Storage Details** | -- Select Action --

Cluster Austin_Prod Storage

Resource View

- VMs
- Datstores**
- NICs
- Aggregators
- NAS Volumes

1. First datastore with most critical problem selected

Datstores

Name	Status	Used(GB)	Used Space(%)	Accessible	Commands	Device Total	Queue Laten
LinZigZagPart11	❌	181.33	90%	Yes	—	—	—
LinZigZagPart10	⚠️	170.88	85%	Yes	0	0	0
LinZigZagPart08	⚠️	154.4	77%	Yes	0	3	0
absmfastt	✅	504.36	25%	Yes	0	0	0
LinZigZagPart12	✅	130.04	65%	Yes	0	0	0
sapm-netapp2_nfs	✅	365.2	18%	Yes	0	0	0
LinZigZagPart09	✅	117.09	59%	Yes	0	0	0
sapm-netapp2_nfs4	✅	221.29	11%	Yes	0	0	0
sapm-netapp1a_nfs	✅	37.65	19%	Yes	0	0	0
sapm-netapp1	✅	30.8	18%	Yes	0	4	0

14 items

Capacity | Real Time - Last 1 Hour(s) Eastern Daylight Time

Chart Options

LinZigZagPart11

3. Storage Growth

Situation Event List

Severity	Situation Name	Display It	Timestamp
❌	KVM_Datastore_Usage_LinZigZagPa		2011-06-16 09:11:18 ET

1 items

2. Critical Alert on Storage Usage for selected datastore

Change History

Type	Component	Change
VMware ESX Computer System	benblade06.tivlab.raleigh.ibm.com::benblade06.tivlab.raleigh.ibm.com	Member added
VMware		Member added

4. Change History...new VM

5. Scroll down for more information

Tivoli Integrated Portal

View: All tasks | Welcome spadmin | Help | Communities | Logout | IBM

Group Roles | VMware Cluster Dashboard | Storage Details | Select Action

Datstores

•1. Datstores sorted by usage

Name	Status	Used (GB)	Used Space(%)	Accessible	Commands /	Device Total	Queue Laten
absmfastt	⚠	576.43	<div style="width: 100%;"></div>	Yes	0	0	0
LinZigZagPart10	⚠	170.49	<div style="width: 100%;"></div>	Yes	0	0	0
LinZigZagPart08	⚠	154.4	<div style="width: 100%;"></div>	Yes	0	2	0
LinZigZagPart12	✅	130.04	<div style="width: 100%;"></div>	Yes	0	0	0
sapm-netapp2_nfs	✅	365.2	<div style="width: 100%;"></div>	Yes	0	0	0
LinZigZagPart09	✅	117.09	<div style="width: 100%;"></div>	Yes	0	0	0
sapm-netapp2_nfs4	✅	221.14	<div style="width: 100%;"></div>	Yes	0	0	0
sapm-netapp1a_nfs	✅	37.65	<div style="width: 100%;"></div>	Yes	0	0	0
sapm-netapp1_home	✅	7.68	<div style="width: 100%;"></div>	Yes	0	0	0

14 items

Situation Event List

•2. Select low usage datastore

Severity	Situation Name	Display Itc	Timestamp
No data to display			

Volumes

•4. High Latency...not a good candidate

Name	Size(GB)	Status	Used Space(%)	Used(GB)	Read Laten	Write Laten	Total Ops
sapm-netapp1a/vol1	100.0	1.0	<div style="width: 73.7%;"></div>	73.7	175.4	1812	5.4

Capacity

Real Time - Last 2 Hour(s) Eastern Daylight Time

Chart Options: sapm-netapp1a_nfs

•3. Plenty of available disk space

Percentage of Space Used

Change History

Type	Component	Change
No data to display		

Volume Metrics

Chart Options

Percentage of Space Used

Volume Size

Found a Suitable Datastore

见智, 见未来



Tivoli Integrated Portal

View: All tasks | Welcome bstern | Help | Communities | Logout

VMware Cluster Dashboard | Storage Details | Server Details

Datstores

Name	Status	Used(GB)	Used Space(%)	Accessible	Commands #	Device Total	Queue Laten
LinZigZagPart11	✖	181.33	<div style="width: 80%;"></div>	Yes	0	10	0
LinZigZagPart10	⚠	170.88	<div style="width: 75%;"></div>	Yes	0	0	0
LinZigZagPart08	⚠	154.4	<div style="width: 70%;"></div>	Yes	0	4	0
absmfastt	✔	504.36	<div style="width: 95%;"></div>	Yes	0	0	0
LinZigZagPart12	✔	130.04	<div style="width: 65%;"></div>	Yes	0	0	0
sapm-netapp2_nfs	✔	365.2	<div style="width: 85%;"></div>	Yes	0	0	0
LinZigZagPart09	✔	117.09	<div style="width: 60%;"></div>	Yes	0	0	0
sapm-netapp2_nfs4	✔	221.29	<div style="width: 50%;"></div>	Yes	0	0	0
sapm-netapp1a_nfs	✔	37.65	<div style="width: 10%;"></div>	Yes	-	-	-

14 items

Filter

Situation Event List

Severity	Situation Name	Display It	Timestamp
No data to display			

Filter

Volumes

Name	Size(GB)	Status	Used Space(%)	Used(GB)	Read Latency	Write Latency	Total Ops
sapm-netapp2:/vol4	500.0	1.0	<div style="width: 30%;"></div>	235.6	27	28	73

1 items

Filter

Change History

Type	Component	Change
------	-----------	--------

Volume Metrics

sapm-netapp2:/vol4

2011-06-16 12:27:00 EDT

•2. Plenty of available disk space

•1. Select another low usage datastore

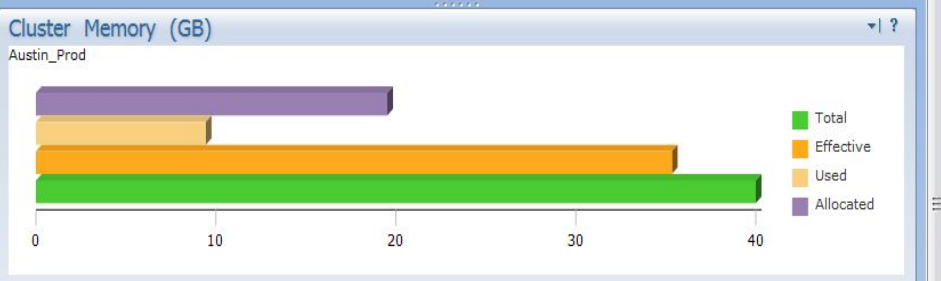
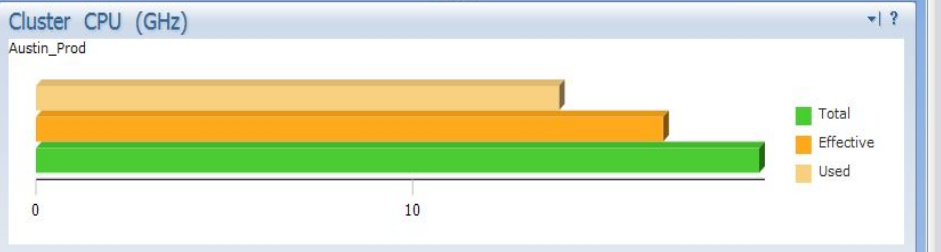
•3. Low Latency...good candidate.

Cluster Scorecard

Datacenter	Cluster	Server	Storage	Network
Austin	Austin_Prod	✓	✓	✓
RTP_SAPM	Test_Cluster	✓	⚠	✓
RTP_SAPM	BladeCenter_Cluster_32bit	✓	✓	✓
RTP_SAPM	BladeCenter_Cluster_64bit	✓	✓	✓
RTP_SAPM	Development_Cluster	✓	✓	✓
RTP_SAPM	xSeries_Cluster	✓	✓	✓

6 items

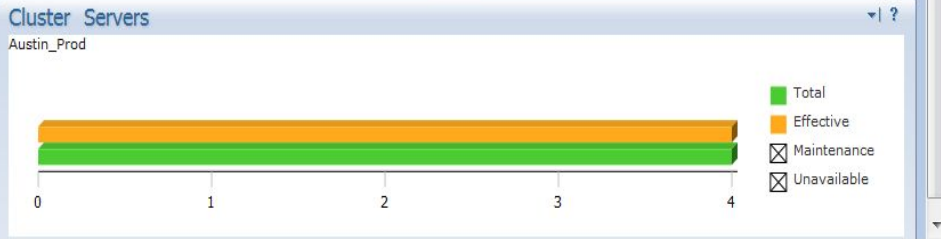
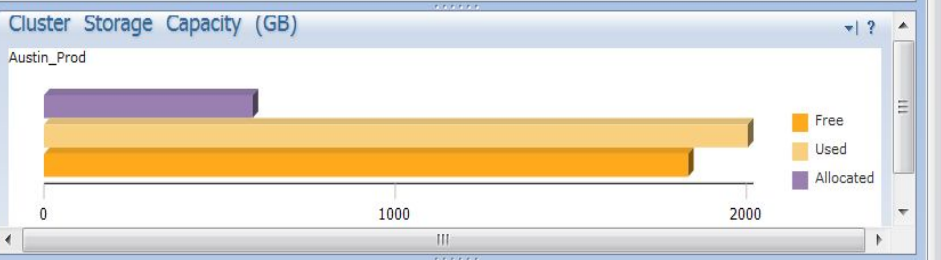
- VMs moved to new datastore.
- Problem resolved.



Cluster Architecture View

Austin_Prod

Guests Windows Guests: 5 Linux Guests: 3 Other Guests: 0	Physical Network Switch Port: 24 Switch Port Down: 0 Switch: Cisco Switch Down: No
VMs VMs: 8 VMs Powered On: 8 Running VMs: 8	Virtual Network vNICs: 12 vNICs Down: 0 pNICs: 8 pNICs Down: 0
ESX Servers Servers: 4 Effective Servers: 4 In Maintenance mode: 0	Datastores Datastores: 8 Hosts Connected: 4 NFS Based: 4 VMFS: 2
	Physical Storage IBM Devices: 2 NetApp Devices: 3 Hitachi Devices: 0 EMC Devices: 0



案例 2

均衡各系统的负载, 以避免潜在的容量
瓶颈



Cluster Health Scorecard showing Server Problem

见智, 见未来



Tivoli Integrated Portal

View: All tasks

Welcome bstern

Help | Communities | Logout

VMware Cluster Dashboard

Server Details

Cluster Scorecard

Last Updated: 2011.06.16 16:00

Filter

Datacenter	Cluster	Server	Storage	Network
Austin	Austin_Prod	✖	✔	✔
RTP_SAPM	Test_Cluster	✔	⚠	✔
RTP_SAPM	BladeCenter_Cluster_32bit	✔	✔	✔
RTP_SAPM	BladeCenter_Cluster_64bit	✔	✔	✔
RTP_SAPM	Development_Cluster	✔	✔	✔
RTP_SAPM	xSeries_Cluster	✔	✔	✔

6 items

Cluster CPU (GHz)

Austin_Prod

Cluster Memory (GB)

Austin_Prod

Cluster Storage Capacity (GB)

Austin_Prod

Cluster Servers

Austin_Prod

Cluster Architecture View

Austin_Prod

Guests	Windows Guests: 5 Linux Guests: 3 Other Guests: 0	Physical Network	Switch Port: 24 Switch Port Down: 0 Switch: Cisco Switch Down: No
VMs	VMs: 8 VMs Powered On: 8 Running VMs: 8	Virtual Network	vNICs: 12 vNICs Down: 0 pNICs: 8 pNICs Down: 0
ESX Servers	Servers: 4 Effective Servers: 4 In Maintenance mode: 0	Datastores	Datastores: 8 Hosts Connected: 4 NFS Based: 4 VMFS: 2
		Physical Storage	IBM Devices: 2 NetApp Devices: 3 Hitachi Devices: 0 EMC Devices: 0

•1. Austin_Prod server problem

•2. Click to Show Historical View

Predict CPU Utilization Critical for Cluster

见智, 见未来



Tivoli Integrated Portal

View: All tasks | Welcome bstern | Help | Communities | Logout

VMware Cluster Dashboard | Server Details | -- Select Action --

Cluster Scorecard

Last Updated: 2011.06.16 14:25:34 Eastern Daylight Time

Datacenter	Cluster	Server	Storage	Network
Austin	Austin_Prod			
RTP_SAPM	Test_Cluster			
RTP_SAPM	BladeCenter_Cluster_32bit			
RTP_SAPM	BladeCenter_Cluster_64bit			
RTP_SAPM	Development_Cluster			
RTP_SAPM	xSeries_Cluster			

6 items

Cluster CPU (GHz)

Austin_Prod

Real Time - Last 1 Hour(s) Eastern Daylight Time

•1. Usage has been high lately

Cluster Memory (GB)

Austin_Prod

Cluster Storage Capacity (GB)

Austin_Prod

Cluster Servers

Austin_Prod

Cluster Architecture View

Austin_Prod

Guests Windows Guests: 5 Linux Guests: 3 Other Guests: 0	Physical Network Switch Port: 24 Switch Port Down: 0 Switch: Cisco Switch Down: No
VMs VMs: 8 VMs Powered On: 8 Running VMs: 8	Virtual Network vNICs: 12 vNICs Down: 0 pNICs: 8 pNICs Down: 0
ESX Servers Servers: 4 Effective Servers: 4 In Maintenance mode: 0	Datastores Datastores: 8 Hosts Connected: 4 NFS Based: 4 VMFS: 2
	Physical Storage IBM Devices: 2 NetApp Devices: 3 Hitachi Devices: 0 EMC Devices: 0

•2. Fly-over to see events affecting resources

•3. Predicted alert that Austin_Prod cluster CPU utilization is trending to critical in 2 weeks

•4. Click to display problem diagnose for servers in the cluster

VMware_Cluster_CPU_Trend_Crit VM:itmx31-VC-benblade06:ESX 2011-06-16 14:08:39 EDT benblade06.tivlab.raleigh.ibm.com

KVM_Server_CPU_Util_High VM:itmx31-VC-benblade06:ESX 2011-06-16 14:15:42 EDT benblade06.tivlab.raleigh.ibm.com

The screenshot displays the Tivoli Integrated Portal interface for the Austin_Prod Cluster. The main navigation bar includes 'VMware Cluster Dashboard' and 'Server Details'. A red callout box points to the 'Resource View' menu, which contains the following items:

- Cluster Workload Utilization and Forecast
- Cluster Workload Balance
- Cluster Top Consumers
- Cluster Bottom Consumers

The 'ESX Servers' section shows a table of server status:

Server Hostname	Overall	CPU Util	CPU Usr	Memory	Memory	Avg VM	Connec
benblade06.tivlab.rz	100	1	12	982.8	23.195	✓	
benblade07.tivlab.rz	21	0.21	16	1,310.4	2.723	✓	
benblade08.tivlab.rz	59	0.59	43	3,522.13	27.009	✓	

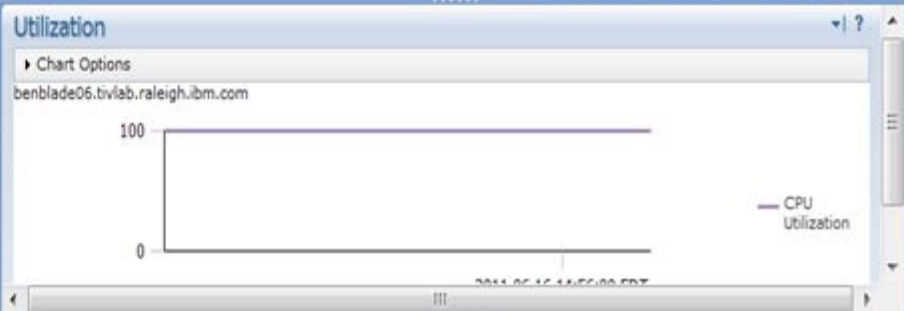
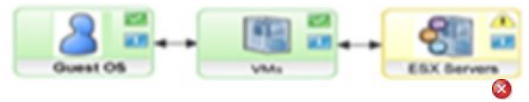
The 'Utilization' chart for benblade06.tivlab.rz shows a flat line at 100% CPU utilization over the last hour. The 'Situation Event List' shows a critical event: 'VMware_Cluster_CPU_Trend_Crit VM:itmx31-VC-benblade06:ESX 2011-06-03 11:36:'. The 'Virtual Machines' section shows two VMs on benblade06.tivlab.rz:

VM Name	Server	Hostname	Overall	Power	CPU Util	CPU Usr	Memory	Memory	VM
sapm-rhx32c	benblade06.tivlab.	-	✓	✓	49	0.49	100	10.	
sapm-rhx32b	benblade06.tivlab.	-	✓	✓	21	0.21	99	4.9	

The 'VM Utilization' chart for sapm-rhx32c shows a peak in utilization.

•Look into historical usage and trending to confirm utilization pattern

- Cluster Workload Utilization and Forecast
- Cluster Workload Balance
- Cluster Top Consumers
- Cluster Bottom Consumers



Type	Component
------	-----------



Tivoli Integrated Portal

View: All tasks

Welcome, batern

Help | Communities | Logout

VMware Cluster Dashboard | Server Details | **Common Reporting**

Work with reports

Viewer - VMware VI Cluster Workload Trend and Forecast

VMware VI: Cluster Workload Trend and Forecast

Data Center: Austin | Date Range: All | Forecast Period (Days): 30 | Metric: All

Go | Show more parameters >

- Historical reports confirm trending has been building up for at least last 30 days.
- Return to cluster health view.

Average CPU Utilization

Timeline	Average CPU Utilization %
2011-04-06	25
2011-04-10	25
2011-04-14	25
2011-04-18	25
2011-04-22	25
2011-04-26	45
2011-05-02	55
2011-05-08	65
2011-05-14	65
2011-05-20	70
2011-05-26	75
2011-06-01	75
2011-06-07	75
2011-06-13	75
2011-06-19	75
2011-06-25	75
2011-07-01	80

Average Memory Utilization

Timeline	Average Memory Utilization %
2011-04-06	25
2011-04-10	25
2011-04-14	25
2011-04-18	25
2011-04-22	30
2011-04-26	30
2011-05-02	30
2011-05-08	30
2011-05-14	30
2011-05-20	30
2011-05-26	30
2011-06-01	30
2011-06-07	30
2011-06-13	30
2011-06-19	30
2011-06-25	30
2011-07-01	30

Average Storage Utilization

Timeline	Average Storage Utilization %
2011-04-06	65
2011-04-10	65
2011-04-14	65
2011-04-18	65
2011-04-22	65
2011-04-26	65
2011-05-02	55
2011-05-08	55
2011-05-14	55
2011-05-20	55
2011-05-26	55
2011-06-01	55
2011-06-07	55
2011-06-13	55
2011-06-19	55
2011-06-25	55
2011-07-01	55

Number of VMs/Host

Timeline	Number of VMs/Host
2011-04-06	4
2011-04-10	4
2011-04-14	4
2011-04-18	4
2011-04-22	4
2011-04-26	4
2011-05-02	5
2011-05-08	5
2011-05-14	4
2011-05-20	4
2011-05-26	4
2011-06-01	4
2011-06-07	4
2011-06-13	4
2011-06-19	4
2011-06-25	4
2011-07-01	4

Need to Find Clusters with Available Capacity

见智, 见未来



Tivoli Integrated Portal

View: All tasks

Welcome, batern

Help | Communities | Logout

VMware Cluster Dashboard

Server Details

•Look for other clusters with available capacity

Cluster Scorecard

Last Updated: 2011.06.16 16:03:02 Eastern Daylight Time

Cluster	Server	Storage	Network
Austin	✖	✔	✔
RTP_SAP	✔	⚠	✔
RTP_SAPM	✔	✔	✔
RTP_SAPM	✔	✔	✔
RTP_SAPM	✔	✔	✔
RTP_SAPM	✔	✔	✔

- Cluster Workload Utilization and Forecast
- Cluster Workload Balance
- Cluster Top Consumers
- Cluster Bottom Consumers

Cluster CPU (GHz)

Austin_Prod

Category	Value (GHz)
Total	~40
Effective	~35
Used	~30

Cluster Memory (GB)

Austin_Prod

Category	Value (GB)
Total	~40
Effective	~35
Used	~10
Allocated	~20

Cluster Storage Capacity (GB)

Austin_Prod

Category	Value (GB)
Free	~1500
Used	~1000
Allocated	~2000

Cluster Servers

Austin_Prod

Category	Value
Total	4
Effective	4
Maintenance	0
Unavailable	0

Cluster Architecture View

Austin_Prod

Category	Item	Count
Guests	Windows Guests	5
	Linux Guests	3
	Other Guests	0
Physical Network	Switch Port	24
	Switch Port Down	0
	Switch	Cisco
VMs	VMs	8
	VMs Powered On	8
	Running VMs	8
Virtual Network	vNICs	12
	vNICs Down	0
	pNICs	8
ESX Servers	Servers	4
	Effective Servers	4
	In Maintenance mode	0
Datastores	Datastores	8
	Hosts Connected	4
	NFS Based	4
Physical Storage	VMFS	2
	IBM Devices	2
	NetApp Devices	3
	Hitachi Devices	0
	EMC Devices	0

Found Clusters to Balance Load



Work with reports

Viewer - VMware VI Balanced and Unbalanced Clusters

tipadmin | About

Keep this version | Add this report | Watch new versions | Add comments

Tivoli software

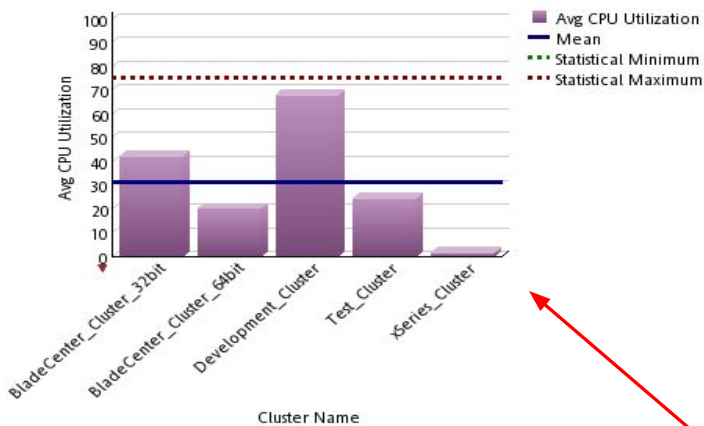


VMware VI Balanced and Unbalanced Clusters

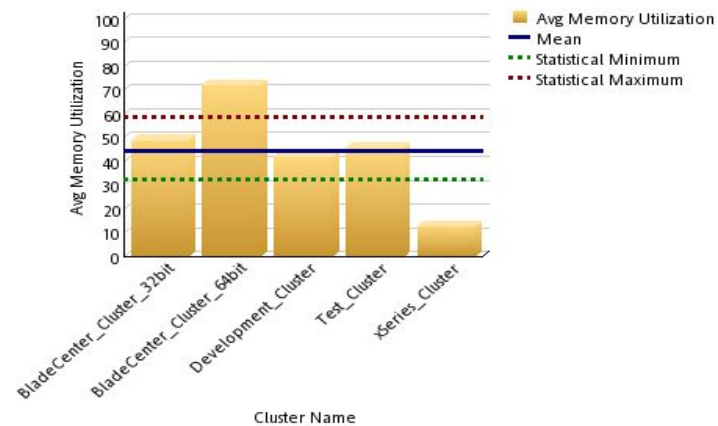
Date filter Last 30 days
Start Date May 15, 2011 12:00:00 AM
Data Center RTP_SAPM
Cluster(s) ALL
Shift Periods All Shifts
Vacation Periods All days

End Date Jun 14, 2011 11:59:59 PM

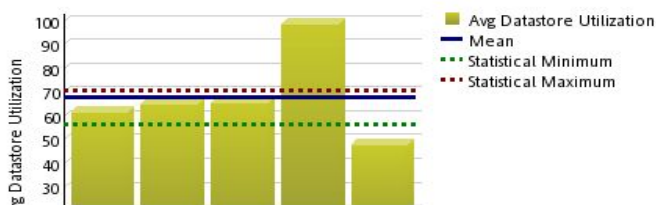
CPU Utilization



Memory Utilization



Datastore Space Utilization



- Couple of clusters are under-utilized in terms of CPU and within normal utilization for other resources.
- Use PlanningCenter to rebalance and optimize workload across the clusters

3

小结



企业正逐渐看到应用程序性能管理解决方案带来的切实的 ROI

201%

投资收益率

用于应用程序可用性、服务请求履行和管理以及分配和发现管理的 IBM 集成服务管理解决方案, 在五年内帮助国际汽车制造商削减了近 2.5 千万美元的 IT 成本。

- 某国际领先的汽车制造商

30 - 40%

停运降低幅度

“停运几率减少了 30% 到 40%, 达到最低水平。[...] 我们可以在问题影响到客户之前, 比以前更快作出反应。通过使用 ITM, 您可以将不同监控客户集成到一个中央监控系统中。可以集中流程及管理团队。这十分有利于节约人力资源, 您可以实现集中化管理。”

- Lajos Tancsik, CIB Bank IT 运营负责人

98%

SLA 级别提高幅度

“以前, 帮助中心无法提供保证的周转时间,” Shah 说, “现在我们以更少的资源达到了承诺的周转时间, 将 SLA (服务级别协议) 级别提高了 98%。”

- Syed Asif Shah, CDC CIO



IBM 是市场和行业中的领导者者

Gartner



Gartner Magic Quadrant 领导地位:

- APM
- IT 事件关联和分析

- 业务服务管理
- IT 服务管理支持工具
- 数据中心自动化

Gartner Market Scope 评为表现卓越:

- 网络配置和变更管理



在整体服务保证、故障和事件管理以及性能监控方面位列第一

EMA Radar 领导地位:

- 用于云服务的 APM: 最佳云远景与设计; 价值领导者, 多组件 APM 解决方案
- 业务服务管理: 服务影响: 巨大的价值和最佳业务影响



IDC 市场份额:

- 在整体系统和网络管理方面位列第一
- 在性能管理方面位列第一
- 在事件管理方面位列第一
- 在网络管理软件方面位列第一

5/5	世界顶级投资银行
8/10	最大的保险公司
9/10	最大的批发银行
7/10	顶级汽车制造商
14/20	最大的金融服务机构

行业领先的解决方案

分布广泛的客户群

相关资源



- **Explore IBM SmartCloud Application Performance Management solutions**
 - [IBM SC APM website](#)
 - [BSM Community](#)
 - [Blog](#)
 - [Twitter](#)
- **请联系您的 IBM/Tivoli 销售代表**
 - 讨论遇到的难题和您的需求
 - 请求评估
- **Dr. Matt Ellis IBM 软件部 SAPM 开发业务副总裁**
 - Matthew.ellis@us.ibm.com





见智，见未来

IBM 2013技术峰会