

Overcoming the Eight Challenges For Optimal Service Delivery While Achieving Cost Savings

Joseph Gulla, Ph.D. IBM Data Center Services Worldwide Center of Excellence

Monday, August 2, 2010 at 11 AM Session Number 7631





Here is the formal abstract



Managing today's complex server environments, networks and IT infrastructures is challenging. Most organizations have tools and disciplines in place to provide basic availability management including hardware and software monitoring capabilities. However, your organization may not have the skills or time to support and implement notification handling, performance and capacity management, security management, configuration management and automation. With the pressure to do more with less, how can you balance the need to drive down costs and also improve delivery of system administration, information access, remote access and problem and change management?

Our speaker will survey the challenges and solutions for effective management of your server infrastructures and network devices. He will discuss important disciplines such as availability management and the tools you need to support a complex IT environment. The use of outsourcing and managed services is suggested as a strategic way to drive efficiency and create business value. Our speaker will provide us with a methodology to evaluate and improve your in-house handling of infrastructure management or to evaluate potential services providers.



Topics are cover in five areas plus appendixes



1. Understand key challenges of infrastructure management

- 2. Plan for effective infrastructure management focused on eight main challenges
- 3. Focus on service areas of growing importance
- 4. Considerations for managed services
- 5. Closing Ideas

Appendixes:

- (1) Infrastructure management checklist
- (2) Can we look to ITIL V3 for structured help?
- (3) Research questions to inspire your own inquiry and reading

SHARE in Boston

Today's heterogeneous computing environments have incredible richness

- Many kinds of servers with great operating system functionality
- Diverse network capabilities with significant bandwidth and functionality
- Middleware that makes it possible to do new and innovative functions at the same time integrating what has been built over the last 30 years
- Applications* that can do almost anything using ubiquitous browsers on desktops as well as a variety of mobile devices





*See: Baird, S (2008) for an interesting discussion of <u>The Heterogeneous World of</u> <u>Proprietary and Open-Source Software</u>. This is one example of the rich literature in this area.



If it is so great, why does it require management?



In short, diverse components are not often architected as a system ...

Characteristics

- Many moving parts
- **Multiple suppliers**
- ✓ Different implementation approaches
- Integration is a common work effort



Description: Broadly Heterogeneous



systems (Coulouris, Dollimore, & Kindberg, 2005)

What about enterprise architecture as an integration tactic?



Definition - Enterprise architecture is about understanding all the different elements that go to make up the enterprise and how those elements interrelate.

The Open Group

Motivation - creates high-level order, in-scope and out-ofscope awareness, semiautomatic interoperability, and cost containment through management of skills.





Source: Enterprise Architecture Validation. (Schekkerman, J. 2004)

The rich functionality in heterogeneous computing can bring many management challenges

- 1. Incidents and problems
- 2. Awareness of status and trends
- 3. Security-related challenges
- 4. Speed of deployment and support
 - 5. Impact of change

6. Infrastructure software maintenance

7. New and challenging technologies

8. Having tools to do the job

Source: Gulla, J. (2008). IDC's Managed Services and Outsourcing 2008 event, November 25, 2008, Dublin Ireland.









Advanced management is often required to meet these challenges



Characteristics

Behaviors

Aware	Are active in that they deploy best-of-breed monitors to sample for problems and passive in that they examine for messages that indicate a problem then take action,	
Predictive	Look for messages that warn of a future problem and fix it in advance of the problem actually happening,	
Proactive	Fix problems when they can, in real time, or leave behind significant details to help the human fix the problem later,	
✓ Controlled	Manage incidents, problems, and changes with rigor and utilize a service-level agreement to keep controls on the service, and	
✓ Data-oriented	Collect data that can be transformed into information upon which to make decisions about availability, problem, change, performance, and other management processes.	





Second topic area

- 1. Understand key challenges of infrastructure management
- 2. Plan for effective infrastructure management focused on eight main challenges
- 3. Focus on service areas of growing importance
- 4. Considerations for managed services
- 5. Closing Ideas

Appendixes:

- (1) Infrastructure management checklist
- (2) Can we look to ITIL V3 for structured help?
- (3) Research questions to inspire your own inquiry and reading

SHARE in Boston

How should we meet the challenge of detecting and handling incidents and problems?





Source: Decomposed elements of the RMIS service product

SHARE in Boston

How can we handle changes with minimal impact on availability?



Tactics	Rationale
1. Have the team members participate in change-management planning meetings on the required frequency.	Build teamwork and give proper focus
2. Use a software tool that facilitates the process including required artifacts, teamwork, and approval.	Lessen the burden of change
3. Prepare for change by planning activities and estimating time required for time-window activities.	Encourage careful planning
4. Test changes and prepare back out activities to be used in the event of a failed change to restore the system to its previous condition.	Testing helps to ensure success; Back-out procedure minimizes the impact of failed changes
5. Consider the use of a specially-skilled change manager to benefit from experiences learned from previous changes.	Specialization ensures higher success rate

Source: Gulla, J. (2008). IDC's Managed Services and Outsourcing 2008 event, November 25, 2008, Dublin Ireland.

What are the effective ways to prevent security problems?



Utilize industry standard information security controls

International Organization for Standardization (ISO) IEC 27002 2005*

Reach agreement and implement security variables like password length and update frequency; timing of periodic employment verification; and use of software security delegation





How do we meet the challenge of effectively using emerging or challenging technologies?



Goal – give the proper focus to emerging and challenging technologies.	Examples 1. Embrace virtualization and related productivity	Value - lower costs, higher application availability, and improved
Expected result is sustained benefits from the use of this technology.	 features. Article: What's next for Virtualization? (see additional reading) 2. Sustain use of high- 	 business flexibility as compared to previous technology approaches.
	Book chapter: High Availability.	

Source: Gulla, J. (2008). IDC's Managed Services and Outsourcing 2008 event, November 25, 2008, Dublin Ireland.



How do we handle the challenge of maintaining server software and firmware?



Set up Systems are properly set Set up servers, process up, proactively sequence and priority, monitored, with monitoring and and managed management Resulting is software fewer problems and Balanced higher Manage including availability collection of configuration support, proactive and patching, security reactive management, and activities support for HA and virtualization



Run

Source: Gulla, J. (2008). IDC's Managed Services and Outsourcing 2008 event, November 25, 2008, Dublin Ireland.

How do we go about providing status and trends?

SHARE in Boston



Source: IBM Remote Managed Infrastructure Service Portal

S H A R E

Why is having the right tools for the job important?



 Specialization of human Network device or application support (interactive) Performance and capacity (reflective) 	0
 2. Scope of responsibility Monitor-only Manage 	Ţ
 3. Integration of human and supporting software (tactics) Do it for them Help them do it Both at the same time (mixed) 	



Source: Gulla developed this three-part view

Tool example – network device monitoring



SHARE ology - Connections - Result _ @ X NOC-Inside v1.2 - Microsoft Internet Explorer File Edit View Favorites Tools Help 😰 🏠 🔎 Search 👷 Favorites 🚱 🔗 🖌 🍇 🔣 - 🦲 × Back -Address 🙆 http://172.16.6.10:8080/noci/login 🛩 📄 Go Links 👸 IBM Business Transformation Homepage 👸 IBM Standard Software Installer 👸 IT Help Central 👸 Join World Community Grid 💖 Windows Marketplace 💌 😢 🔁 😢 🙆 Executive Monitor Asset Help Desk X Logged in as shaikh [Customer] in Timezone [America/New York : Eastern Standard Time : GMT-05:00] SNAPPIMON 🛃 🥏 ? Reports Admin Topology Business View Network View Tree View Status Select -Options Search Go Refresh Tree Topology Name Type Status 🔶 Business View IBM-US-NY-YTH-IIS-SMBW31 IIS 5.0 0 Network View P Routers[1] IBM-US-NY-YTH-RTR-RCX-NETSOL[53] Links[2] IBM-US-NY-YTH-LL-RTR2FW ■ IBM-US-NY-YTH-LL-RTR2SW Subnets[1] ∲ ▲ IBM-US-NY-YTH-WATSON-SUBNET Switches[1] IBM-US-NY-YTH-SW2-RCX-UA-NETSOL[5] Servers[29] BU IBM-US-NY-YTH-SRV-ERMISSMDB01 - III IBM-US-NY-YTH-SRV-SMBW31 Applications[1] IBM-US-NY-YTH-IIS-SMBW31 Systems[1] - 🔤 IBM-US-NY-YTH-W23-SMBW31 B. IBM-US-NY-YTH-SRV-SMBW32 IBM-US-NY-YTH-SRV-SMBW33 F ----Applet in.co.netsol.snappimon.module.topology,view.NetworkMapApplet started O Trusted sites



Source: Snappimon view for IBM Remote Managed Infrastructure Service Product

Tool example – OS or application debugging



Process - usrdpamU14ttmra.tivolitive.com - TLMS Support Edit View Help													
<	<u></u> . ≽ - ⊯ - [1]	B	7	280	田 🛛 🥥	se 📾 🕸	. 🕘 🛄 🕾 🔗	•	Ö 🗆 🗎	छि 🖭 🥱 📮	l 🛃 🞄 🔳		5
Na	vigator	Andreas I Andreas	± 00	8 000	Process CPII Pr	ercent lisan			Process	+ Child CPII Pero	sent /		-
	A Mour [Dhuning		0		, controlog	Borro	1 062				Berry 1 o	
View: Physical KN4_InterfaceDown Capacity Usage Information Disk Usage File Information Users Agent Management Services Process System CPU (Percent) Process System CPU (Percent) Process User CPU (Percent) Process User CPU (Percent)													
Pro	ocess Information	Detail			:						1		Ī
												Page: 1 c	01
	Process Command Name	Process ID	Process Parent ID	Process State	Process System CPU (Percent)	Process User CPU (Percent)	Cumulative Process System CPU (Percent)	Cumul U: (F	ative Process ser CPU Percent)	Kernel Priority	Nice Value	Total Size (Pages))
	init	1	0	Sleeping	0.00	0.00	1,10		0.64	16	0	180	
1	ksoftirqd/0	2	1	Sleeping	The state of the	process (SI	eeping, Disk, .00		0.00	34	19	0	Î
4	events/0	3	1	Sleeping	Running, Zomb	ie, Trace, Di	ead, or N/A).		0.00	10	-5	0	ĺ
	khelper	4	1	Sleeping	0.00	0.00	0.00		0.00	10	-5	0	ĺ
2	kthread	5	1	Sleeping	0.00	0.00	0.00		0.00	11	-5	0	
	kblockd/0	7	5	Sleeping	0.00	0.00	0.00		0.00	10	-5	0	ĺ
6	kacpid	8	5	Sleeping	0.00	0.00	0.00		0.00	20	-5	0	
1	pdflush	203	5	Sleeping	0.00	0.00	0.00		0.00	20	0	0	
	pdflush	204	5	Sleeping	0.08	0.00	0.00		0.00	15	0	0	
4	aio/0	206	5	Sleeping	0.00	0.00	0.00		0.00	11	-5	0	
2	kowond0	105	4	Clooping	0.00	0.00	0.00		0.00	15	0	0	2
ta	nt 👌 🖗 😂	遵 💽	I 🗩 🖸	• 🖪 🕷	> 🗆 📀 🦁	2				100%			

SHARE in Boston

Source: TEPS view for IBM Tivoli Live Monitoring Service Product

Tool example – performance and capacity



	 Image: A set of the set of the	pawa02	13	18707	27.10%	3.27%	23.82%	0.12%	1.77	1079340	460351	0.03
	 Image: A set of the set of the	srm1ds001	13	18704	36.72%	0.71%	35.99%	0.00%	2.85	686200	1051725	0.00
	 Image: A start of the start of	srm1ds003	13	18700	31.63%	2.30%	29.32%	10.15%	2.79	3415833	72288	0.98
	A	srmxm105	14	19418	48.46%	6.33%	42.12%	1.79%	4.14	363961	133285	2.67
	 Image: A set of the set of the	srmxm106	14	19412	49.40%	4.30%	45.09%	2.07%	2.89	381487	85813	2.73
	 Image: A set of the set of the	<u>typhoon</u>	10	14390	56.51%	49.27%	7.24%	0.79%	1.15	249440	199295	0.03
	<u>Status</u>	▲ <u>Server</u>	<u>Days</u>	<u>Obs</u>	Processor Utilization	<u>Sγs %</u>	<u>User %</u>	<u>% I/O</u> <u>Wait</u>	<u>Run</u> Queue	<u>AVM</u>	<u>Free</u>	Paqe Ins/Sec
Tota	al Numb	er Of Rows:	26									
Dat	ta Sumr	Data Summary										
Mini		nary										
	imum:		10	14390	20.84%	0.71%	3.52%	0.00%	1.00	53940	3612	0.00
25%	imum: Quarti	le:	10 13	14390 18686	20.84% 30.72%	0.71% 7.60%	3.52% 11.67%	0.00% 0.15%	1.00 1.27	53940 76561	3612 28199	0.00
25% 50%	imum: Quartil Quartil	le:	10 13 13	14390 18686 18707	20.84% 30.72% 49.26%	0.71% 7.60% 16.63%	3.52% 11.67% 29.20%	0.00% 0.15% 1.03%	1.00 1.27 1.88	53940 76561 93793	3612 28199 67794	0.00 0.00 0.00
25% 50% 75%	imum: Quartil Quartil Quartil	le:	10 13 13 13	14390 18686 18707 18713	20.84% 30.72% 49.26% 63.46%	0.71% 7.60% 16.63% 35.15%	3.52% 11.67% 29.20% 40.24%	0.00% 0.15% 1.03% 5.11%	1.00 1.27 1.88 2.88	53940 76561 93793 377106	3612 28199 67794 107096	0.00 0.00 0.00 0.18
25% 50% 75% Max	imum: Quartil Quartil Quartil Quartil kimum:	le: le: le:	10 13 13 13 13 14	14390 18686 18707 18713 19418	20.84% 30.72% 49.26% 63.46% 100.00%	0.71% 7.60% 16.63% 35.15% 79.80%	3.52% 11.67% 29.20% 40.24% 58.99%	0.00% 0.15% 1.03% 5.11% 25.26%	1.00 1.27 1.88 2.88 9.59	53940 76561 93793 377106 3415833	3612 28199 67794 107096 1188001	0.00 0.00 0.00 0.18 2.73
25% 50% 75% Max Sun	imum: Quartil Quartil Quartil Quartil kimum: n:	le: le: le:	10 13 13 13 14 336	14390 18686 18707 18713 19418 481848	20.84% 30.72% 49.26% 63.46% 100.00% 1344.77%	0.71% 7.60% 16.63% 35.15% 79.80% 632.53%	3.52% 11.67% 29.20% 40.24% 58.99% 712.03%	0.00% 0.15% 1.03% 5.11% 25.26% 110.48%	1.00 1.27 1.88 2.88 9.59 70.54	53940 76561 93793 377106 3415833 11942513	3612 28199 67794 107096 1188001 4114535	0.00 0.00 0.00 0.18 2.73 9.40

Source: SRM view for IBM Remote Managed Infrastructure Service Product

SHARE in Boston

What is the relationship between activities and tools?



Activity or discipline	Tool Example
Basic availability management	NetView
Software monitoring of resources	IBM Tivoli Monitoring
Notification handling	TelAlert
Performance and Capacity management	Server Resource Management (SRM)
Security Management	Fusion
Network device management	Snappimon
Configuration Management	CM Integrator (CMI)
System Administration	Service Delivery Portal and Knowledge Base
Information access	IBM Services Connection Portal
Automation	Parity and EnVision
Remote access	RemotelyAnywhere and Open SSH
Problem and change management	ManageNow over eESM
	Source: IBM Remote Managed Infrastructure Service Product





What is the relationship between deployment tactics and tools?

Tactic and Target	Tool Example
Agentless OS Monitoring	 IBM Tivoli Agentless Monitoring for: HP-UX Operating System AIX Operating System Linux Operating System Solaris Operating System Windows Operating System
Virtualization-support agents	IBM Tivoli Monitoring for Virtual Servers Agents including VM Ware VI and Citrix
Application monitoring agents	 ITM for Microsoft Applications Agent for: Exchange SQL MSVS Hyper-V Active Directory Cluster Server .NET Framework SharePoint Biztalk IIS



Source: IBM Tivoli Live Service Product

Speed and support--how is it achieved?



Network Infrastructure	
Standard VPN Connectivity	1. K
Send VPN Boarding Request Form to SMBDI	
Receive and Analyze Completed VPN boarding	g Form.
Enable SMBDI	2.0
Fill in additional Registration Templates	
Account Entitlement (ADD)	e
E CMI	
Enable GSMRT Reporting	
Bronze Boarding Plan	
Change Window - B1: Install Tools	
Change Window - B1B: Install Tools	
Register Tools	
Configure and Verify Tools	Plan
Exit Citeria	
Test acknowledgement of TelAlert	
Silver Boarding	
Prepare Tools	
Change Window S1: Install Tools Onsite	
HAN E	
Change Window - S2: Install Tools Remotely	/
Register Tools	Process
• Verify and Configure Tools	1100033
Security and Remediation	
Silver Exit Criteria	
Validate Security Compliance	\
Gold Boarding	
Enhanced Reporting enabled	
+ Transition Exit Criteria	

- . Rapid setup with pre-built plans
- On-going support using wellestablished and proven processes

P	roces	ss nuni	cations	OneVier				Phase 7 - 180 Min	
Phase	Standard	Focus	Multi-Customer	Site / Multi- Site				management en gagement	
1	0.10	0 - 10	0 · 10	0 · 10				Management Bridge	
2	10 - 30	10 - 20	10 - 20	10 - 20			Phare 6 120	(1st / 2nd Line and	
3	20	15	13	15		Phase 5 - 60	Minutes	Service Mgmt)	
	60	30	30	30		Tech Bridge	Level 1 management	Senior and Executive	
6	120	60	60	30		Invoked Service Mamt	engagement 1st Line Mamt Joins	Management	
1	180	90	90	30		Notified	Tech Bridge	(2nd Line	Problem Resolved
l timefri	Phase 1 Montoir Problem Dr 0-10 h Initial Valid	- Ops ng Car soovery vin idation mu nic a	dmum time allotted Phase 2 - Ops Recovery Ctr Initial Recovery Begins 10 Mn (Critical Event Netfocations Duty Mgr 15 Mn) Hilp Desk Notified By Ops Minitoring Ctr tions consis	Phase 3 - 16 Min Duty Manager Takes Owners Review Critical Event Notification	Phase 4 - 30 Min. Tech Support Engaged Chirosted Account Natification BRN Notified (IT Applicable) es, phone cali	Exec Alert Notification Executive Alert Summary Report s, etc.	Exec Alert Notification Executive Alert Summary Report	Exec Alert Notification Executive Alert Summary Report	Process
	Critical eve	ent 10	16		30	60 1	120 1	180	Ť

Source: IBM Remote Managed Infrastructure Service Product



Third topic area

- 1. Understand key challenges of infrastructure management
- 2. Plan for effective infrastructure management focused on eight main challenges

3. Focus on service areas of growing importance

- 4. Considerations for managed services
- 5. Closing Ideas

Appendixes:

- (1) Infrastructure management checklist
- (2) Can we look to ITIL V3 for structured help?
- (3) Research questions to inspire your own inquiry and reading

Service areas of growing importance



What?	Why?
1. Database and middleware support	Organizing support personnel around the competency allows more focused and standard support. Resource sharing can help multiple applications.
2. Management of non-interactive workloads	Consolidating workloads into an cross-platform tool lowers costs and increases predictability.
3. Independent view of security	Proactive scanning creates an independent security input on internal and external exposures.
4. Multi-use testing	Stress tests scripts may be able to be used for low intensity user-experience testing.
5. Consolidation of backup and recovery workloads	Consolidating workloads using fewer tools can lower costs and increases predictability.



Source: Gulla recent experience as an IT Specialist



Fourth topic area

- 1. Understand key challenges of infrastructure management
- 2. Plan for effective infrastructure management focused on eight main challenges
- 3. Focus on service areas of growing importance
- 4. Considerations for managed services
- 5. Closing Ideas

Appendixes:

- (1) Infrastructure management checklist
- (2) Can we look to ITIL V3 for structured help?
- (3) Research questions to inspire your own inquiry and reading

The use of managed service providers is a strategic way to drive efficiency and to create business value. Why?



- 1. Skills and experience: Strong providers have a broad and deep skills base needed to support the heterogeneous computing environment.
- 2. **Continuous support**: Strong providers have flexible 24*7 service options.
- 3. Lower operational costs: Strong providers offer a low cost for a high level of service often using offshore resources.

The other message is **realign your key resources**. Strong providers offer the opportunity to redeploy your key human resources to more strategic activities as compared to maintaining existing systems.





Fifth topic area

- 1. Understand key challenges of infrastructure management
- 2. Plan for effective infrastructure management focused on eight main challenges
- 3. Focus on service areas of growing importance
- 4. Considerations for managed services

5. Closing Ideas

Appendixes:

- (1) Infrastructure management checklist
- (2) Can we look to ITIL V3 for structured help?
- (3) Research questions to inspire your own inquiry and reading

How can you achieve balance with infrastructure management? What are some guiding ideas?



SHARE in Boston



- 2. Support assets anywhere
- 3. Scalability
- 4. Affordable and advanced
- 5. Balance between people and automation
- 6. Fast implementation with sustained support
- 7. Choices and flexibility--a continuum with options
- 8. Operational efficiency
- 9. Technical compliance
- 10. Uninterrupted services

Additional Reading



1. Detecting and handling incidents and problems

Information Technology Infrastructure Library - http://en.wikipedia.org/wiki/Information Technology Infrastructure Library from Wikipedia accessed June 2010

2. Handling changes with minimal impact on availability

The Business Impact of Change Management - <u>http://gbr.pepperdine.edu/063/change.html</u> from <u>Graziadio</u> <u>Business Report</u> accessed June 2010

3. Preventing security problems

- Information Security Incident Management (ISO 13) https://wiki.internet2.edu/confluence/display/itsg2/Information+Security+Incident+Management+(ISO+13) from Information Security Guide: Effective Practices and Solutions for Higher Education assessed June 2010
- Incident Management https://buildsecurityin.us-cert.gov/bsi/articles/best-practices/incident/223-BSI.html from Build Security In accessed June 2010

4. Using emerging or challenging technologies effectively

- Virtualization

http://virtualizationreview.com from How do you guys keep up assessed July 2010

http://virtualizationreview.com/articles/2010/06/01/whats-next-for-virtualization.aspx from What's Next for Virtualization? Accessed on July 27, 2010

- High Availability

http://software.intel.com from Keeping Up with Change in a Large Scale Linux Environment accessed July 2010

http://www.samba.org/samba/docs/man/Samba-HOWTO-Collection/SambaHA.html#id2672152 from The Official Samba 3.5.x HOWTO and Reference Guide accessed on July 27, 2010.



Additional Reading



- 5. Maintaining server software and firmware
 - **Software** Testing and quality assurance for component-based software by Jerry Gao, H.-S. J. Tsao, Ye Wu (2003).
 - Firmware <u>http://www.eetimes.com/discussion/break-point/4024917/Firmware-basics-for-the-boss</u> from <u>Firmware basics for the boss</u> accessed July 2010
- 6. Having indicators of status and trends for specific infrastructure activities
 - Availability management <u>http://www.itlibrary.org/index.php?page=Availability_Management</u> from <u>ITIL –</u> <u>Availability management</u> accessed July 2010
 - **Performance management -** IT performance management by Peter Wiggers, Maritha De Boer-de Wit, Henk Kok (2004).
- 7. Having the right tools for the job
 - **Design -** Designing the User Interface by Ben Shneiderman (1993).
 - **Systems Management** Systems management for information technology and software engineering by Andrew Sage (1995).
- 8. Deploying infrastructure and tools rapidly with a proper level of ongoing management

Rapid deployment - http://tinobox.com/wordpress/smallbusiness/speed-of-implementation-the-1-principle-determining-business-success/ from Speed of Implementation: The #1 principle determining business success accessed July 2010

Ongoing management - IT Service Management An Introduction. (2007). itSMF International.











S H A R E Ischnology - Consections - Results

Back matter

- 1. Understand key challenges of infrastructure management
- 2. Plan for effective infrastructure management focused on eight main challenges
- 3. Focus on service areas of growing importance
- 4. Considerations for managed services
- 5. Closing Ideas

Appendixes:

- (1) Infrastructure management checklist
- (2) Can we look to ITIL V3 for structured help?
- (3) Research questions to inspire your own inquiry and reading

SHARE in Boston



Appendix: Infrastructure Management Checklist



Checklist for detecting and handling incidents and problems



- Monitoring to detect incidents and problems?
- Using technology to automatically handle incidents, open problem records and assign priority?
- Using tools to anticipate and correct problems before they occur?
- Providing automated support for system administrator to resolve incidents and problems?
- Assigning support personnel based on the severity of the incident or problem?
- Using Service-level Agreements?
- □ Following rigorous problem handling and management steps to ensure effective problem resolution?
- Utilizing a specialized service manager and a multidisciplinary team as needed?



Checklist for handling changes with minimal impact on availability



- □ Implementing team participation in change-management planning?
- Using a software tool that facilitates the process including required artifacts, teamwork, and approval?
- □ Preparing for change by planning activities and estimating time required?
- Testing changes prior to their implementation and preparing backout activities in the event of a failed change?
- Using a skilled change manager to benefit from experience of previous changes?



Checklist for preventing security problems



- Using information security controls based on an industry standard?
- Implementing key security variables such as password length and update frequency early in the process?
- □ Performing security remediation as required for servers and other devices?
- □ Looking for security exposures during the ongoing support period and specifying the frequency of these analyses?
- Reporting monthly on key security attributes and activities related to servers and other devices?



Checklist for maintaining server software and firmware



- □ Proactively administering servers as well as using monitoring software?
- Managing server platform support activities like patching and log file maintenance?
- □ Performing server security administration for identity and access?
- □ Providing specific focus and support for virtualization?
- □ Providing high availability software support including periodic testing?



Checklist for having flexible indicators of status and trends



- Posting reports on a portal for easy access?
- Providing tools that focus on server resource management and generate performance and capacity reports to analyze trends and manage security?
- Setting up a portal to enter problem records and change notifications?
- Providing links to other needed tools, portlets and services that support ongoing activities?





Checklist for having precise tools for the job

- Support for availability management?
- Hardware monitoring?
- □ Software monitoring of key computer resources?
- □ Flexible notification handling?
- Support for performance and capacity management?
- Support for security management?
- Support for configuration management?
- □ Support for system administration?
- Easy access to information?
- Automation of routine processes?
- □ Standardized remote access?
- □ Support for problem and change management?



Checklist for using emerging or challenging technologies effectively



□ Focusing on skills support for virtual machines and logical partitions?

- Using change windows to make dynamic changes to production servers?
- Developing skills in a variety of high availability software like IBM HACMP and VMware HA?

Checklist for focusing on service areas of growing importance

Use of planned batch processing?

- Use of technology to make best use of backup windows?
- □ Specialized support for middleware and database?



Checklist for deploying infrastructure and tools rapidly



Use of a model project plan that is based on prebuilt components?
Use of a project manager to ensure that your deployment goes smoothly?
Use of a delivery architect?

Checklist for establishing a proper level of ongoing management

Well-defined ongoing support activities using desk procedures?
Use of a service delivery manager?
Use of security specialists, change managers and duty managers?





Appendix: Can we look to ITIL V3 for structured help?



ITIL V3 Service Life Cycle Stages





Source: http://itservicemngmt.blogspot.com/2007/07/itil-v3-whats-new.html

SHARE in Boston

Service Strategy Stage



Purpose - "The service strategy of any service provider must be grounded upon a fundamental acknowledgement that its customers do not buy products, they buy the satisfaction of particular needs."

Service Strategy is **important as it sets out guidance** to all IT service providers and their customers, to help them operate and thrive in the long term by building a clear service strategy. It is important to have a clear understanding of--

- 1. What services should be offered?
- 2. Who the services should be offered to?
- 3. How the customer(s) and stakeholders will perceive and measure value?
- 4. How this value will be created?
- 5. How service performance will be measured?



Service Design Stage



Purpose - "The Service Design is a stage within the overall service lifecycle and an important element within the business change process. Focus is—

The design of appropriate and innovative IT services, including their architectures, processes, policies and documentation, to meet current and future agreed business requirements."

Selected main goals—

- 1. Design services to meet agreed business outcomes
- 2. Design processes to support the service lifecycle
- 3. Identify and manage risks
- 4. Design secure and resilient IT infrastructures, environments, applications and data/information resources and capability



Service Transition Stage



Purpose - "To deliver services that are required by the business into operational use. Service Transition delivers this by receiving the Service Design Package from the Service Design stage and delivering into the Operational stage every necessary element required for ongoing operation and support of that service."

Within the Service Transition process set, some of the processes most important to Service Transition are--

The whole lifecycle processes are:

- 1. Change Management
- 2. Service Asset and Configuration Management
- 3. Knowledge Management

Processes focused on Service Transition are:

- 1. Transition Planning and Support
- 2. Release and Deployment Management
- 3. Service Validation and Testing
- 4. Evaluation

SHARE in Boston

Service Operations Stage



Purpose – "Service Operation must deliver agreed levels of service to users and customers, and to manage the applications, technology and infrastructure that support delivery of the services.

It is only during this stage of the lifecycle that services actually deliver value to the business, and it is the responsibility of Service Operation staff to ensure that this value is delivered."

Key processes for Service Operation include--

- 1. Event Management Process
- 2. Incident Management Process
- 3. Request Fulfillment Process
- 4. Access Management Process
- 5. Problem Management Process

SHARE in Boston

Continual Improvement Stage



Purpose - "Continual Service Improvement (CSI) is concerned with maintaining value for customers through the continual evaluation and improvement of the quality of services and the overall maturity of the ITSM service lifecycle and underlying processes.

CSI combines principles, practices and methods from quality management, Change Management and capability improvement, working to improve each stage in the service lifecycle, as well as the current services, processes, and related activities and technology."





Appendix: Research questions to inspire your own inquiry and reading





Research Questions

- 1. Detecting and handling incidents and problems
- What is the impact of not detecting or noticing significant incidents and addressing them in a timely manner?
- When patterns of incidents are not resolved in a problem context, what is the usual impact?
- 2. Handling changes with minimal impact on availability
- What happens when changes fail--what is the business impact?
- What happens if a necessary rate of change is not sustained? What is the impact on the business?
- 3. Preventing security problems
- What is the impact of the proactive monitoring to prevent security problems?
- Does vulnerability scanning have a real impact on preventing security problems?
- What percentage of problems are detected through passive monitoring of systems?
- 4. Using emerging or challenging technologies effectively
- What is the business justification to adopt emerging technology?
- What is the economic justification to continue to test and maintain technologies like replication and high availability software?

SHARE in Boston



Research Questions

5. Maintaining server software and firmware

- What are the biggest inhibitors to keeping software up to date?
- Why is it important, if at all, to keep firmware current?
- What are the current firmware update procedures?
- 6. Having indicators of status and trends for specific infrastructure activities
- Does traditional reporting, both real time and after-the-fact, have a true business impact?
- How useful is the ability to drill-down to gather detailed information about a server or network device?
- 7. Having the right tools for the job?
- What are the business consequence of having adequate software tooling?
- What percentage of software never gets deployed by the company who buys it?
- 8. Deploying infrastructure and tools rapidly with a proper level of ongoing management
- What is the economic benefit of rapid time to market?
- What is the payback, if any, to on-going service management?

