

Planning, Implementation and Operations: Optimizing VMware Software on Your HP Infrastructure

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VMWORLD 2006

Implementing Virtualization With HP

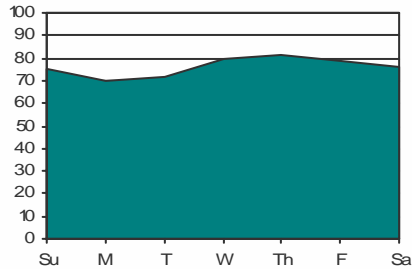
A step-by-step approach

Phase I Planning	Phase II Deployment and Migration	Phase III Operations	
Discover Analyze Design	Deploy Migrate Configure	Management Care and Feeding	
Consolidation services	ISV toolsets	Virtualization services	
HP Services	leading SIs	channel partners	solution and ISV partners

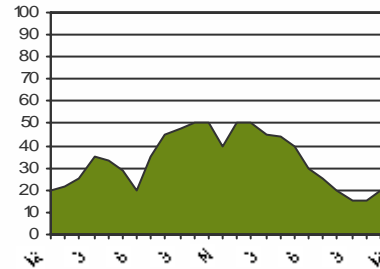


Phase I: Planning

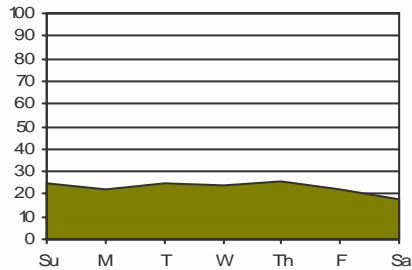
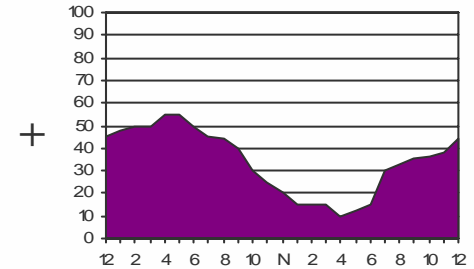
Identify Virtualization Candidates



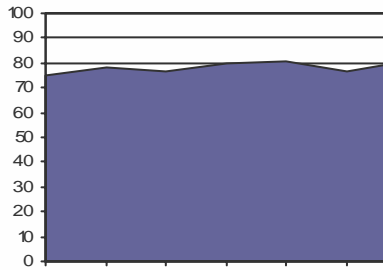
Older (<1GHz) systems even with consistently high utilization



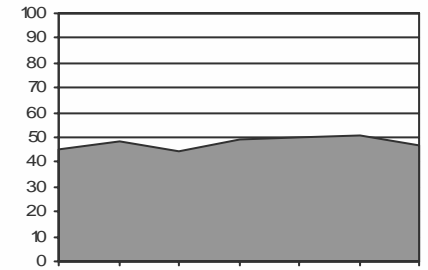
Uni-processor applications that peak at different times of the day



Relatively recent systems with consistently low utilization

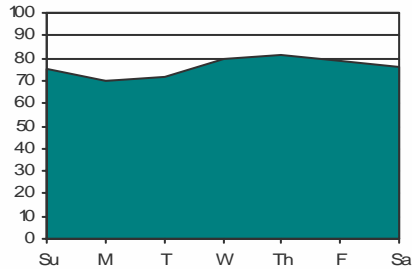


2P systems averaging above 75% or 4P averaging above 45% utilization

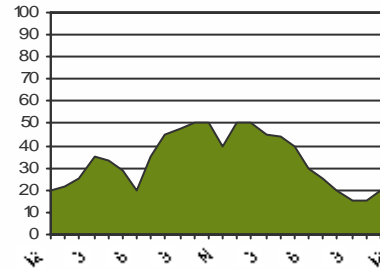


Phase I: Planning

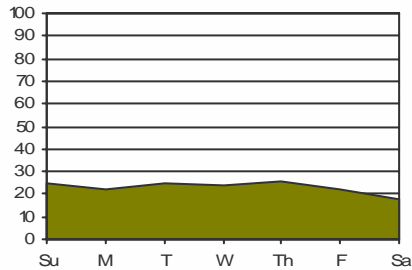
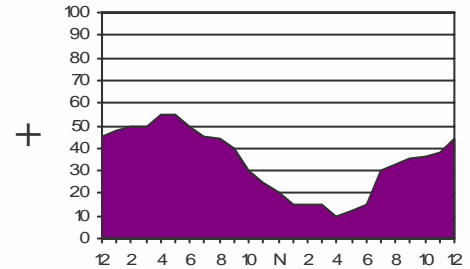
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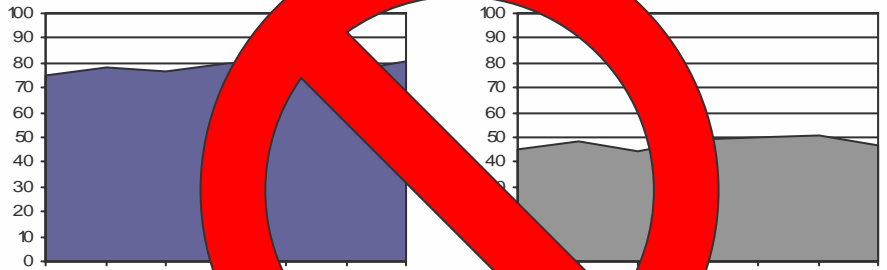
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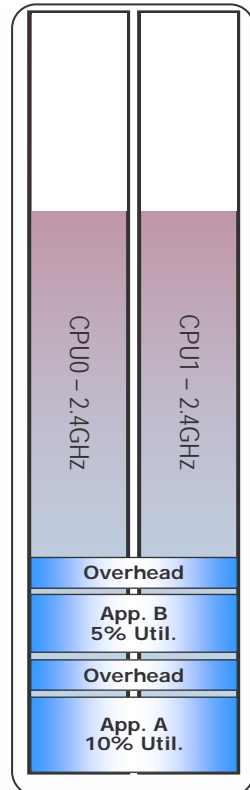


2P systems average above 75% of average utilization above 45% utilization

Phase I Planning: Plan Deployment Using HP ProLiant Sizer for VMware ESX



Physical Server	Current Server Model	CPU	# of CPUs	Application	OS version	App Size (MB)	% CPU Util.	Max Mem Usage (MB)	Avg Mem Throughput (MB/s)	Max Disk Throughput (MB/s)	Avg Network Throughput (Mbps)	Max Network Throughput (Mbps)	Max IOPS	Max IOPS
server001	DL360	ProLiant B	1	Windows 2000	11	23	376	34	200	2	1	0	1	0
server002	DL360	ProLiant B	1	Windows 2000	21	13	465	380	400	4	10	0	1	0
server003	DL360	ProLiant B	2	Windows 2000	16	11	341	198	404	7	16	0	1	0
server004	DL360	ProLiant B	1	Windows 2000	23	38	652	376	670	6	13	0	1	0
server005	DL360	ProLiant B	2	Windows NT 4.0	16	39	456	132	302	6	14	0	1	0
server006	DL360	ProLiant Pro	1	Windows SP	3	12	534	425	509	9	17	0	1	0
server007	DL360	ProLiant Pro	1	Windows 2000	2	12	376	366	541	3	16	0	1	0
server008	DL360	ProLiant Pro	1	Windows 2000	8	17	130	133	470	3	16	0	1	0
server009	DL360	ProLiant Pro	1	Windows 2000	6	16	322	330	403	3	16	0	1	0
server010	DL360	ProLiant Pro	2	Windows 2000	7	23	365	334	421	6	12	0	1	0
server011	DL360	ProLiant Pro	1	Windows 2000	23	39	652	376	670	6	13	0	1	0
server012	DL360	ProLiant Pro	1	Windows NT 4.0	6	23	525	422	421	3	8	0	1	0
server013	DL360	ProLiant Pro	2	Windows SP	3	24	167	350	424	6	14	0	1	0
server014	DL360	ProLiant Pro	1	Windows SP	1	13	376	425	512	6	16	0	1	0
server015	DL360	ProLiant Pro	1	Windows NT 4.0	3	16	384	384	384	3	16	0	1	0
server016	DL360	ProLiant Pro	1	Windows 2000	6	12	376	376	403	3	16	0	1	0
server017	DL360	ProLiant Pro	1	Windows 2000	1	12	376	376	403	3	16	0	1	0
server018	DL360	ProLiant Pro	1	Windows 2000	1	12	376	376	403	3	16	0	1	0
server019	DL360	ProLiant Pro	1	Windows 2000	1	12	376	376	403	3	16	0	1	0
server020	DL360	ProLiant Pro	1	Windows 2000	1	12	376	376	403	3	16	0	1	0



Quantity	Part Number	Description
2	374795-021	ProLiant BL3p 2.6GHz 1GB 1P
1	281404-822	BL p-Class server blade enclosure with enhanced backplane components with 8 Rapid Deployment Pack licenses
1	230769-001	Three Phase Redundant Power Enclosure with 6 power supplies
1	240559-021	ProLiant p-Class Mini Bus Bar
1	230766-021	ProLiant P-Class RJ-45 Patch Panel(pair)
2	351588-021	Opteron 252 2.6/1GHz-1M
2	379300-021	4GB REG PC3200 2x2GB
2	376639-021	2GB REG PC3200 2x1GB
2	376638-021	1GB REG PC3200 2x1GB
4	286716-822	145.x - GB 10,000 rpm
2	346914-021	128MB BBWC for Smart Array 6i

#2 most used sizer on hp.com

Input your current system configurations and workloads into the web-based sizer at:

www.hp.com/go/vmware

The sizer computes equivalent utilization for newer processors and factors in overhead

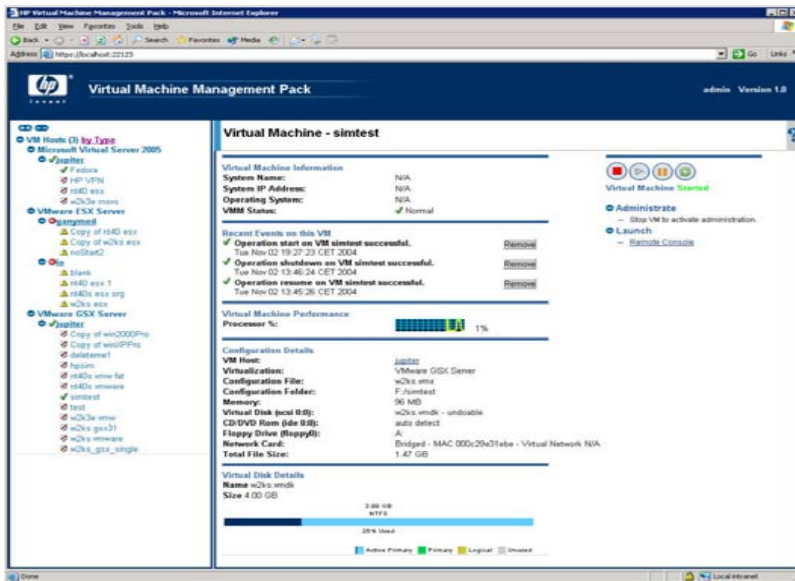
The sizer outputs recommendations on which applications to share and a complete order list



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Virtual Machine Management

Manage and migrate virtual machines



Trends

- Cost is coming down
- Performance is improving

Benefit

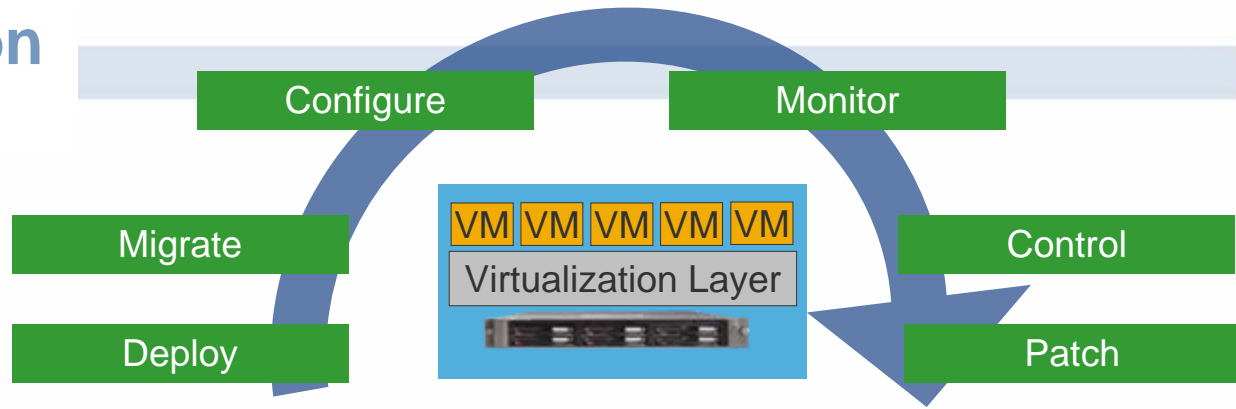
- Applications can run on any host
- Improved asset utilization
- VM guests are hw host independent

Implications

- Server management is for physical and virtual servers – seamlessly
- Heterogeneous VM host management
- At some point, every server will have a VM host, even if only 1 guest

The Virtualization Stack

Management Layer



Virtual Machine Guests



Host Server



Unified Windows and Linux management

Virtualization Layer



Unified vm host management

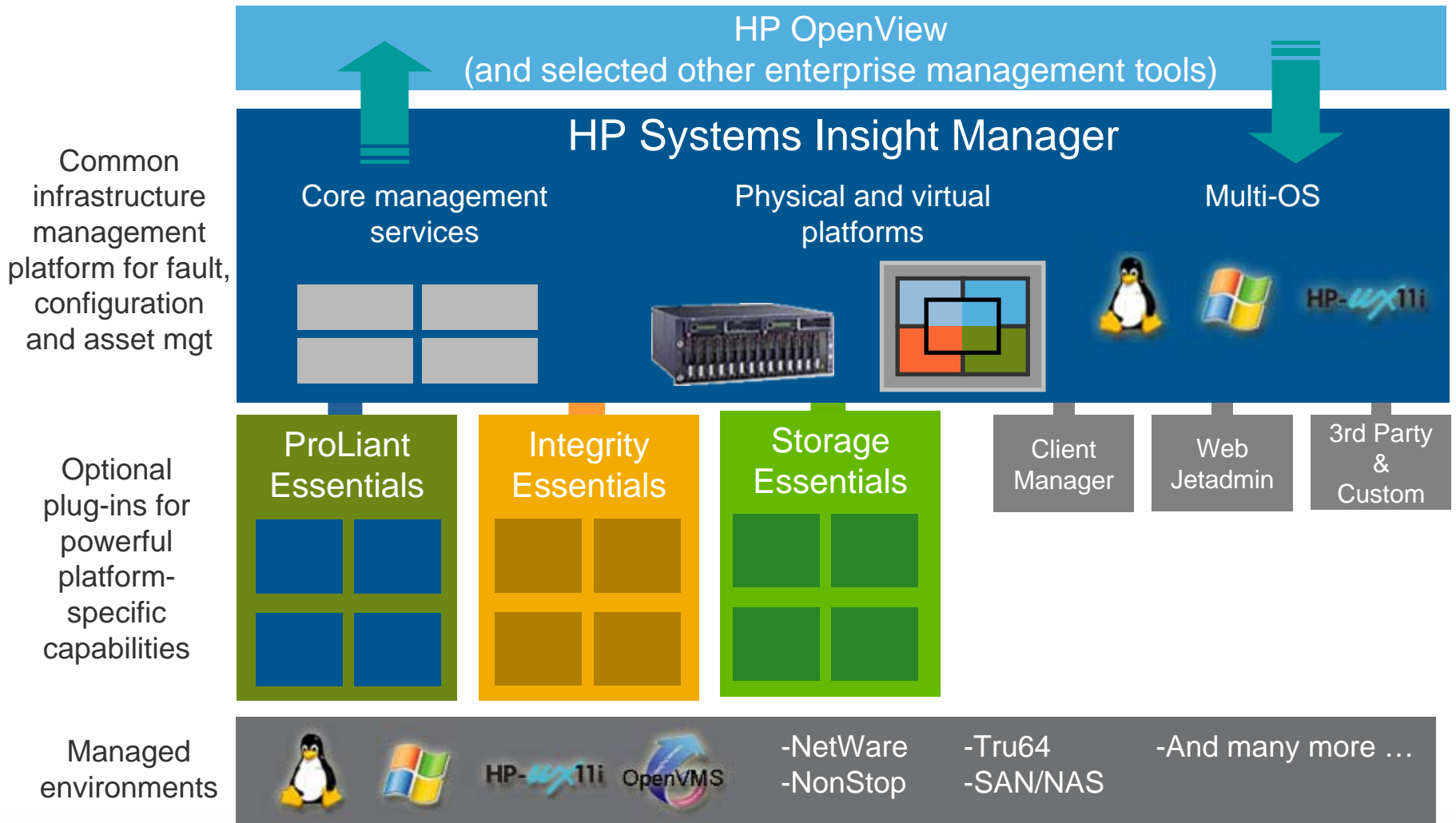
Physical Platform



Unified rack and blades, server and storage management

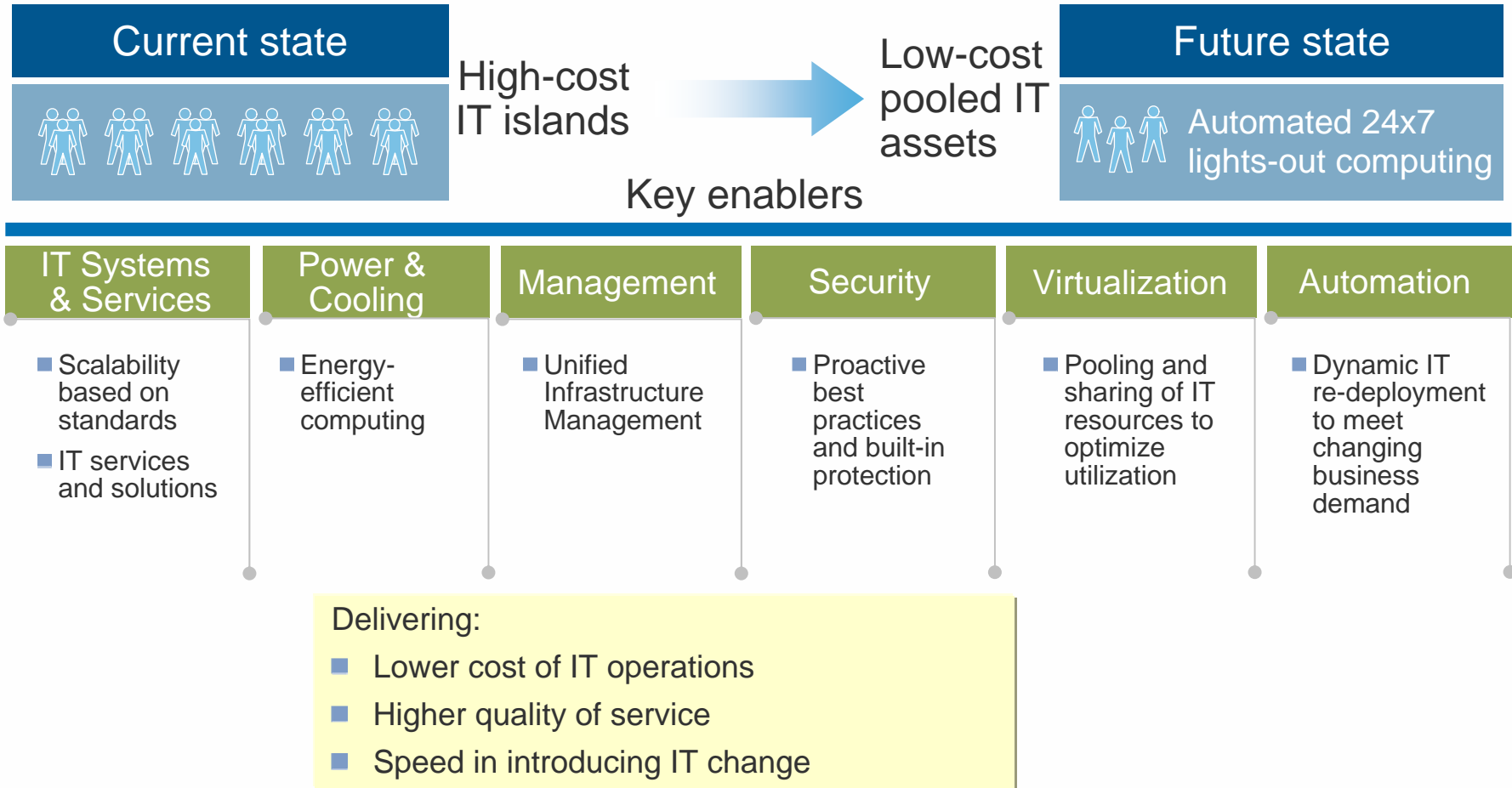


Unified Infrastructure Management



Adaptive Infrastructure

Delivering on the NGDC trend



HP Services C&I Customer Experiences

- World leader in construction materials manufacturing
 - PeopleSoft implementation / datacenter consolidation
 - Needed rapid deployment of both servers and off-shore developer workstations
 - Realized almost immediately that local developer workstations needed to be in datacenter, adjacent to database server
- Financial services company with out of control x86 server environment
 - 1,500 servers, most significantly under-utilized
 - Preparing to outsource server environment
 - Processes “broken”
- Major telecommunications firm
 - Significant server sprawl
 - Outsource partner resistant to virtualization

Consulting & Integration Customer Experiences

- State IT Agency
 - Outsourcing all IT functions
 - 2,500+ x86 servers
 - 95+ agencies supported
 - Variety of technology standards and processes
 - HP is “transformation partner”
 - x86 / Unix server consolidation / virtualization
 - Datacenter consolidation
 - Directory services
 - OpenView
 - Messaging

C&I Best Practices

- Engage early
 - Start out with best practices
 - Minimize rework
 - Maximize benefit
- Minimize exceptions (a.k.a. customizations)
 - Standardize configurations
- Deploy capacity in clusters
 - Servers, networking, storage – all at once, all compatible
- Make decisions quickly
 - The losses associated with delay typically outweigh the benefit of the delayed decision
- Process is king
 - It doesn't matter how good the technology is, if you don't back it up with solid processes, you're sunk

Questions and Comments?

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