Best Practices for Consolidation Projects

Lynne Glickman
Solution Architect
Hewlett-Packard

Agenda

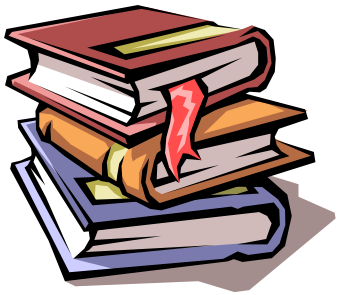
- Introduction
- Overall Consolidation Project
- Process
- Analysis and Strategy
  - Business Objectives and Metrics
  - Discovery and Inventory
  - Financial
- Architect and Validate
  - Analysis and Sizing
- Detailed Design
- Implementation
- Conclusions and Summary
- Additional Resources

Introduction

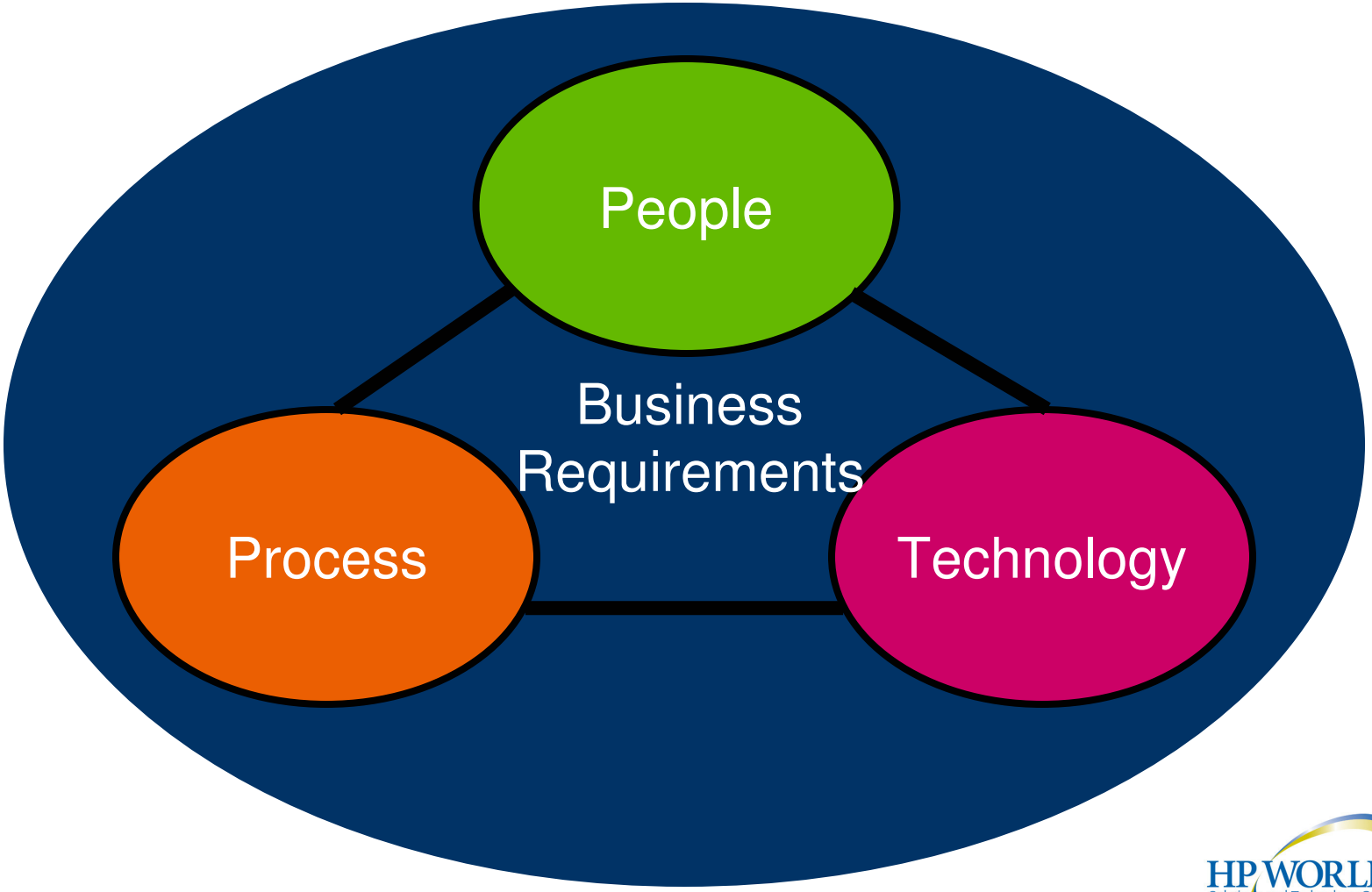
Definitions

- Critical Success Factors – Things that must be done to achieve your goals; strategic

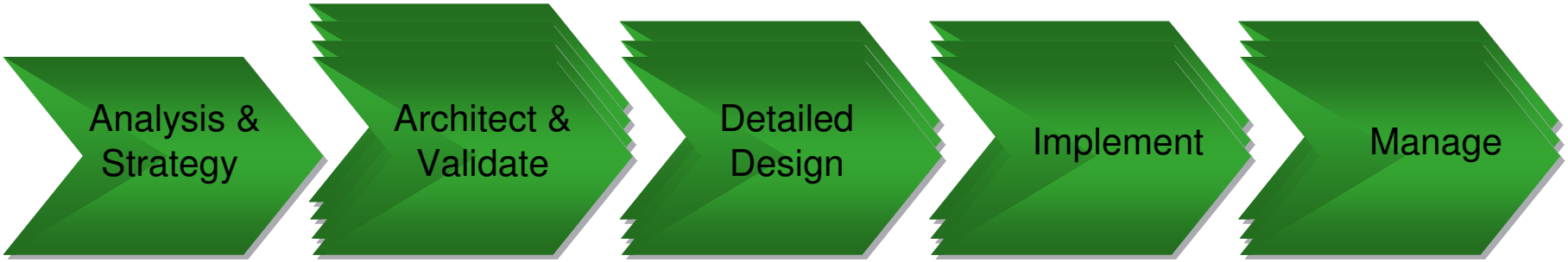
- Best Practices – Guidelines to follow that will improve efficiency, performance, quality based on experience; tactical



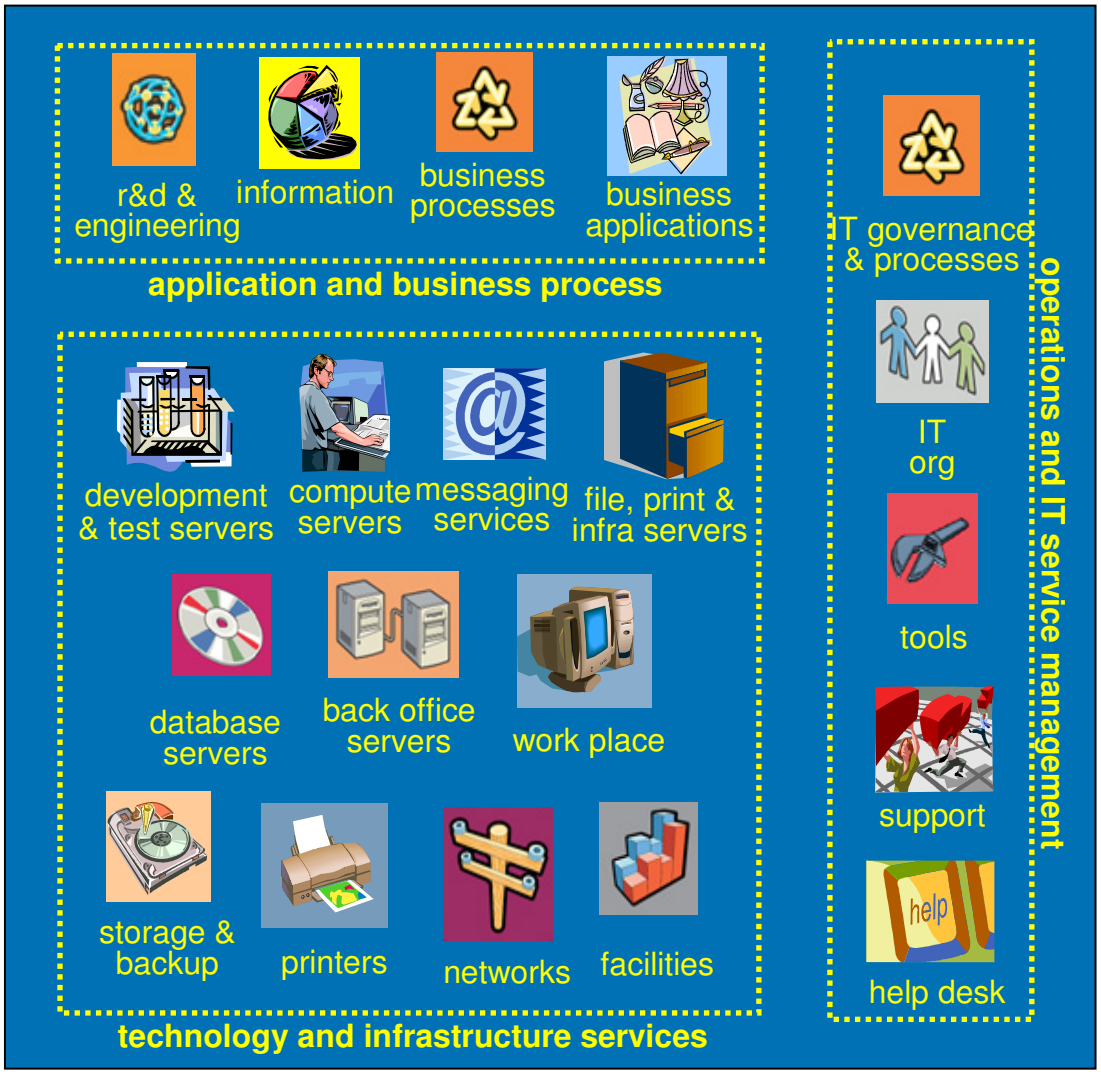
IT Consolidation Requires a Balanced Approach



Steps for Consolidation Projects



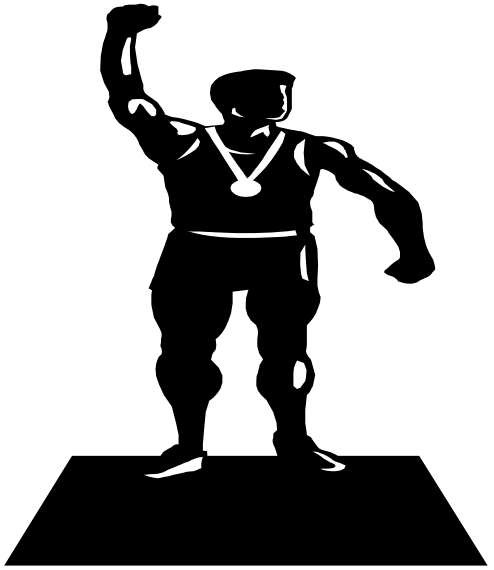
Possible Consolidation Projects



Overall Consolidation Project

Overall Consolidation Project

- IT Champion that is committed to consolidation effort
  - From the start
  - Navigate the politics
  - Provide appropriate communications
  - Kick-off to get all parties affected involved
  - Not a one time deal
  - Rational way to get funding for the project
- IT Governance
  - Process



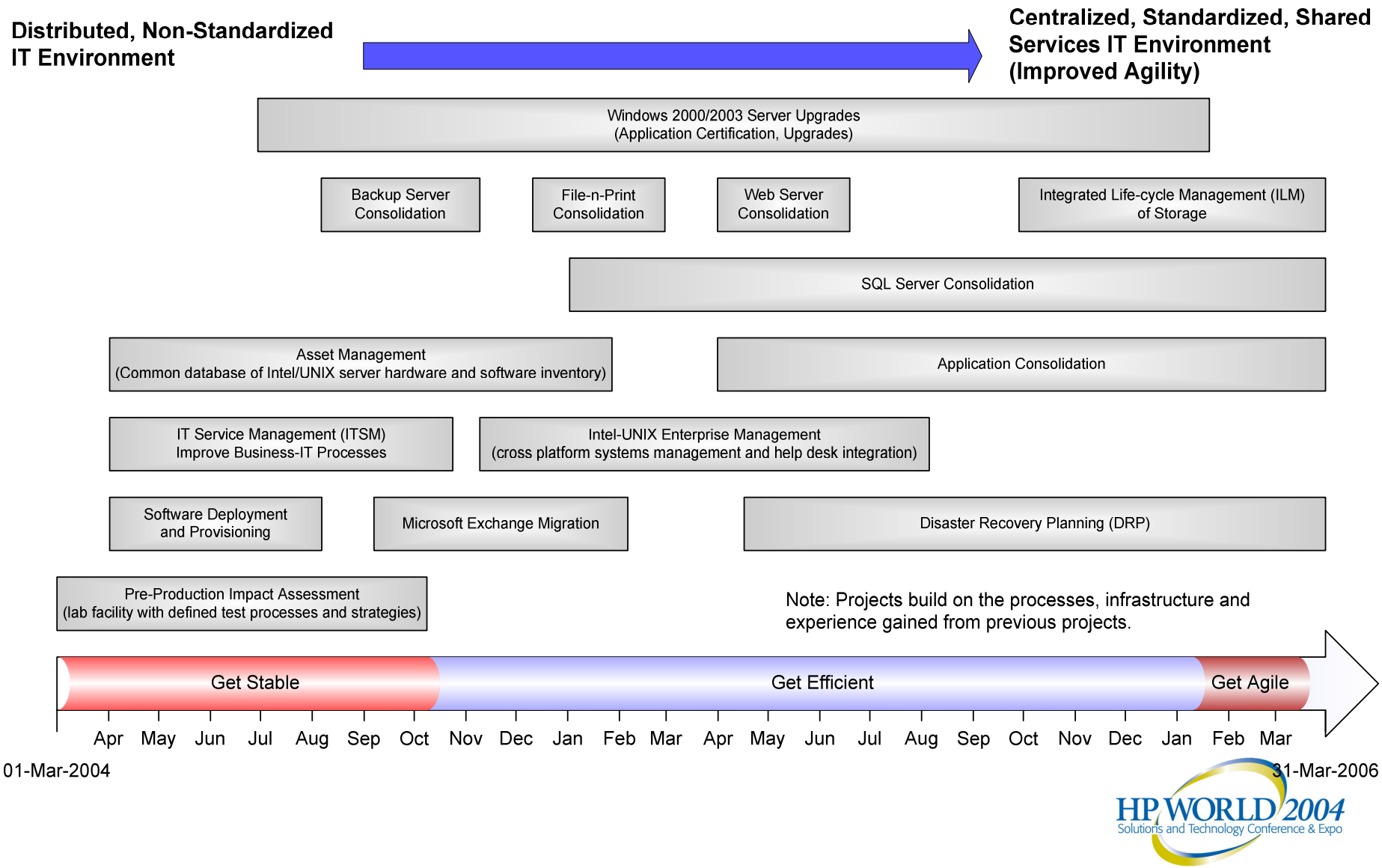
Overall Consolidation Project

- Time is not on your side
  - Effective consolidation analysis will take time (no quick fix)
  - Consolidation projects can be drawn out
- Once the designs/configurations are determined, stick with them
  - Value of speed
  - Don't try to do it all at once

Overall Consolidation Project

- Phased approach to minimize impact
- Create a Consolidation Roadmap
- Create a Consolidation Project Management Office (PMO)
- Ensure realistic expectations are set with management as to what to expect with regards to cost savings, staff savings, risks, time, etc.

Customer Example - IT Optimization Futures Roadmap Project View



Overall Consolidation Project

- Team effort: Servers, Storage, Network, Financial, DBAs and Application owners
- IT and Business Unit Alignment
- Technology is not the major issue in consolidation projects
- Know the picture of where you want to go

Process

Process and Security

- IT Infrastructure Library (ITIL)
  - Change management
  - Configuration management
- HW and SW standardization
- Common Database of information about the IT environment
  - Configuration Management Database (CMDB)
- Automation
  - Event Management
  - Backups
  - Virus Protection
- Management across Platforms
  - Proactive
- Security / Disaster Tolerance
- Account Management
  - Centralized authentication
  - Application considerations

Analysis and Strategy: Business Objectives and Metrics

Business Objectives and Metrics

- Understand your organization's objectives and metrics
  - Line of Business (LOB) Objectives
  - LOB Metrics
  - IT Objectives
  - IT Metrics

- Define and agree on measurable success criteria and project priorities

LOB Objectives and Metrics

- Financial savings
  - X% of budget
  - Reduce overall costs
- Standardization due to mergers/acquisitions
  - One email system
  - One expense system

IT Objectives and Metrics

- Getting control of your IT environment
  - Good server inventory
- Improved availability (SLAs)
  - Uptime and recovery
- Improved reliability
  - Uptime and recovery
- Centralization of operations
  - Fewer operations staff
  - Utilization of enterprise management software

- Reduction in data center space
  - Fewer data centers
    - X data centers to X –Y data centers
  - Reduction in floor space
    - Floor space (current = X); (future = X-Y)
- Standardization
  - HW
    - Fewer server configurations
  - SW
    - Fewer OS or application versions

Analysis and Strategy: Discovery and Inventory

Discovery and Inventory

- How much do you think you know about your IT environment today?
  - Availability of baseline inventories that detail server hardware, applications residing on the servers, and performance characteristics of the in-scope servers
- What data do you need to collect?
  - Servers:
    - CPU, Memory and I/O utilization
    - What applications
    - Mission criticalness of these applications
  - Data Centers
    - Current floor plan and square footage
    - Future floor plan and square footage

Discovery and Inventory

- Low impact discovery tools
  - Agentless
  - Scripts
- When is data good enough for analysis?
  - How much time and many resources
- What does the operations staff know?
- One Place for data
  - CMDB
- Timeliness of data you collect

Sample Discovery Info

- Server Name
- Model
- Manufacturer
- Serial Number
- # of CPUs
- Memory (MB)
- OS Version
- Site
- Country
- Secure
- HA
- Partition – HW
- Partition – SW
- SLA
- Server Age
- BU Owner
- Application Name
- Application Interdependencies
- Total Storage (MB)
- Used Storage (MB)
- Month n CPU Utilization
- Month n CPU Queue
- Month n Disk Utilization
- Month n Memory Utilization
- Month n Memory Que
- Month n Memory

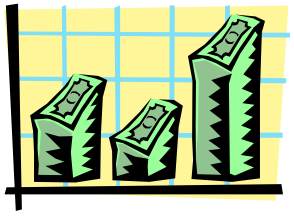
Sample Analysis and Strategy Tasks

Week	Task
1	Install Discovery tool and begin data collection
2	Data Collection
3	Data Collection
4	Data Collection, Prep for Workshop, VMware and Blade Evaluation
5	IT Service Management (ITSM) Process Assessment
6	Workshop
7	Workshop Analysis
8	Presentation of Findings

Analysis and Strategy: Financial

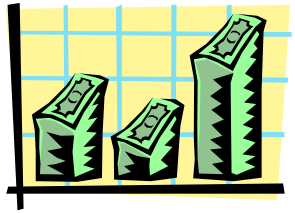
Financial

- Really understand the LOB and IT objectives and metrics (not always in alignment)
- Create reasonable metrics
- SLAs stated in terms of metrics
- Choose the “appropriate” metric over time
- Determine the business value of the applications
- Following the dollars may not be the best way (your program must have no control over costs)
- Integrate the data about the IT environment to “one” common database



Financial

- Determine “appropriate” level of Financial analysis
  - ROM (initial analysis and strategy)
  - Detailed Investment Justification (architect and validate)
- Once you have established the objectives and metrics, now to the practical matters at hand
  - Understand the data for the metrics that need to be collected:
    - Servers
      - Current environment: initial outlay, depreciation, software and hardware maintenance costs, staff costs, facility costs, power costs, A/C costs
      - Future configurations and the associated costs
    - Data Centers
      - Current environment including lease or monthly costs associated with facility ownership, all associated server costs
      - Future facility costs



Sample Financial Information

Existing Environment

- Vendor Maintenance Costs
- Systems Admin and Operations
- Floor Space
- Power
- Air Conditioning
- Refresh existing environment
- Other

Target Environment

- Vendor Maintenance Costs
- Systems Admin and Operations
- Floor Space
- Power
- Air Conditioning
- Other

Maybe estimates at this point

Sample Financial Information

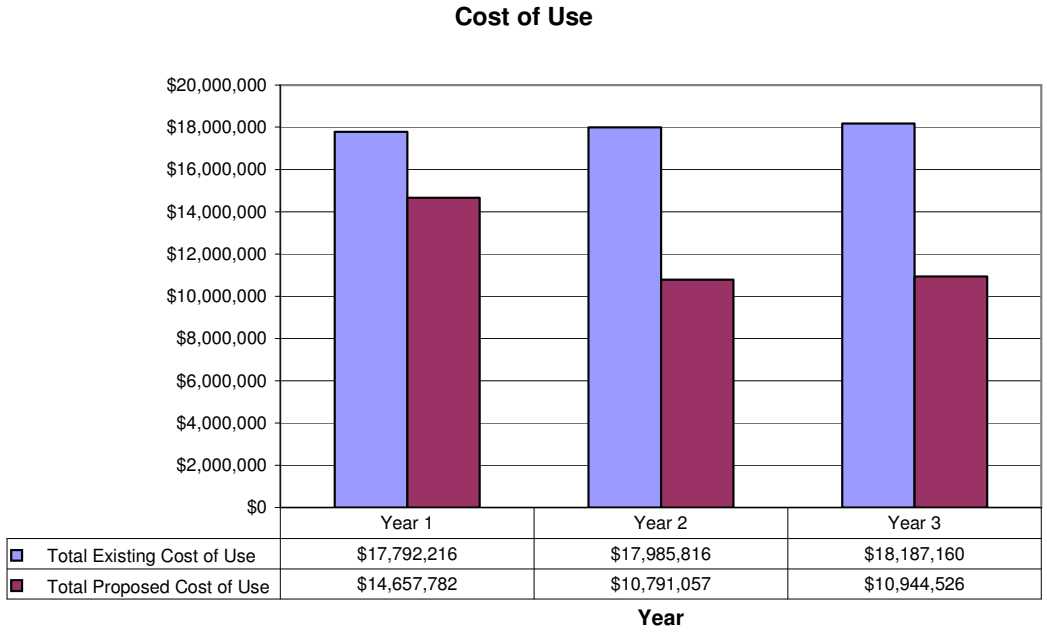
Difference

- Vendor Maintenance Costs
- Systems Admin and Operations
- Floor Space
- Power
- Air Conditioning
- Refresh existing environment
- Other
- New Hardware Purchases
- Integration
- Retirement of Existing Systems

Maybe estimates at this point

Financial Analysis Example

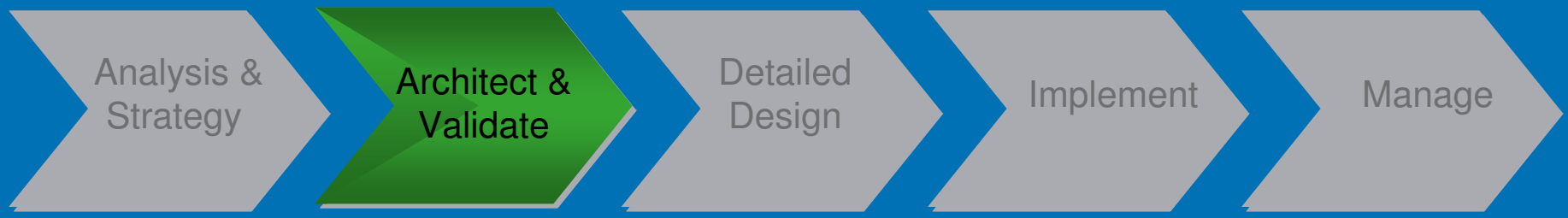
Current System vs. Proposed Consolidation



Cash Flow Savings w/ Proposed Solution						
			Year			
		Initial	1	2	3	Total Savings
Cash Flow Savings		$ (1,803,834)	$ 6,212,267	$ 4,892,436	$ 4,924,991	$ 14,225,8[illegible]1

Maybe estimates at this point

Architect and Validate: Analysis and Sizing



Analysis and Sizing

- Remember to keep the server hardware and OS software standard consistent
- Don't lose sight of the Business drivers
- Understand the applications
- Time Zones may need to be considered
- Testing is critical
- Don't forget the Network
- Do you have the data you need to properly analyze the environment?
  - Assumptions
- Appropriate amount of time to accurate analyze the environment
- Detailed reports
  - Inventory
  - Network bandwidth
  - Utilization of servers
- Migration – consistent methodology

Analysis and Sizing – Meeting your needs

- Server Considerations
  - Architecture: 32 bit or 64 bit
  - Operating System
  - Form Factor
  - New to market
  - Max CPU
  - Max Memory
  - Max I/O slots
  - Power requirements
  - Reliability
  - Warranty

- Data Center Considerations
  - How many? (Disaster Tolerance)
  - Location
  - Leases
  - Space
  - Power
  - Air Conditioning
  - Network Bandwidth
  - Logistics and Planning for moving of equipment
  - Spare equipment
  - Vendor support during move

Analysis and Sizing – Meeting your needs

- Storage Considerations
  - No single point of failure in overall design
  - Testing all fail-over AND fail-back features is critical
  - Ensure SAN controller and switch firmware is current
  - Determine storage requirements: capacity, performance, growth and security
  - Use spreadsheet to map old to new storage
  - Review storage / SAN configuration rules.
  - Review current storage configurations, device naming and addressing

Architect and Validate: Financial

Sample Financial Information

Existing Environment

- Vendor Maintenance Costs
- Systems Admin and Operations
- Floor Space
- Power
- Air Conditioning
- Refresh existing environment
- Other

Target Environment

- Vendor Maintenance Costs
- Systems Admin and Operations
- Floor Space
- Power
- Air Conditioning
- Other

Detailed Real data

Sample Financial Information

Difference

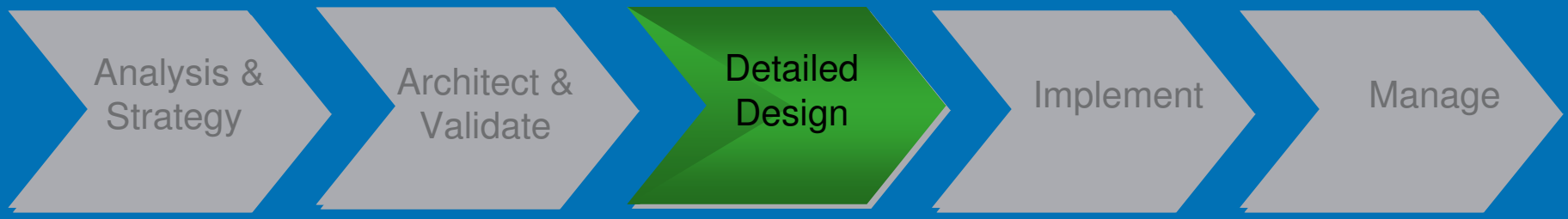
- Vendor Maintenance Costs
- Systems Admin and Operations
- Floor Space
- Power
- Air Conditioning
- Refresh existing environment
- Other
- New Hardware Purchases
- Integration
- Retirement of Existing Systems

Detailed Real Data

Sample Architect and Validate Tasks

Weeks	Task
9 – 11	High Level Design / Investment Justification (Wintel Shared)
12 – 14	High Level Design / Investment Justification (Web Shared)
15 – 17	High Level Design / Investment Justification (SQL Shared)
18	Presentation of Findings

Detailed Design



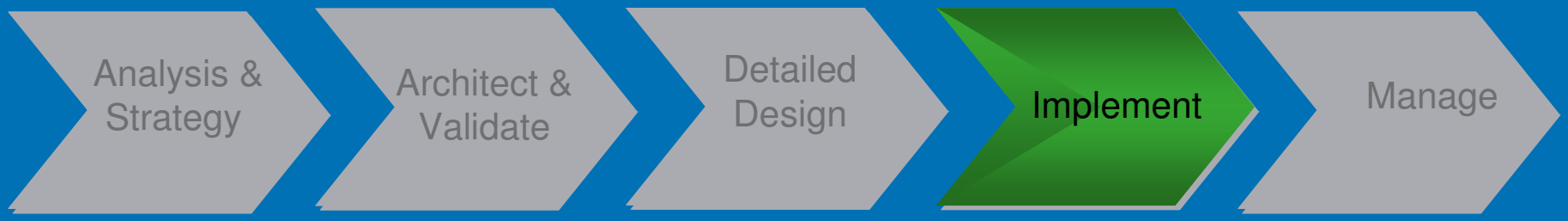
Detailed Design

- Detailed Specifications for Future State
  - Servers
  - Storage
  - High Availability
  - Acceptance Test Plans
  - Technical Migration Guide
- Implementation and Migration Plans
  - Site prep and installation of equipment
  - OS, application, middleware, user files deployment
  - Data migration process
  - Functional, User, System and Certification testing
  - Operational Schedule
  - Estimate effort, skills and Work Breakdown Structure

Sample Detailed Design Tasks

Weeks	Task
13 - 15	Wintel Shared Technical planning Define Test Plan Define Migration Strategy and Plan Define System and Application Cutover Schedule Final Plan
16 - 17	Web Shared ...
19 - 21	SQL Shared ...

Implementation



Implementation

- Minimal Impact!
  - Planning and scheduling
  - Communications
  - Testing
  - Fall back plan
- Staffing / Training
  - Job descriptions
  - Career counseling

Sample Implementation Tasks

Weeks	Task
22 - 23	Consolidated Wintel Shared Configure Consolidated Systems Integrate servers, network, storage Functionality and interoperability testing Load application Test Cut over
24 - 25	Consolidated Web Shared ...
26 - 27	Consolidated SQL Shared ...

Conclusions and Summary

Summary - IT Methodology

- Set business goals, analyze benefits and risks of consolidation
- Assess the server / application portfolio for consolidation opportunities then develop a high level consolidation roadmap
- Develop a detailed consolidation design and project plan, pilot new technologies, and validate the design
- Implement the consolidated environment design while managing coexistence and migration
- Ensure the consolidated environment operational disciplines meet the new service level objectives

Summary - Keys to Success

- Business driver alignment to the consolidation project
- Don't forget people, process and technology
- Understand the technology enablers and what will work in your environment
- Continuous performance monitoring of network, servers, databases & applications is required
- IT Governance is key
- Strong Project Management is required for more complex consolidation projects
- Planning and testing is critical

Tough issues on project will not be technical!!!

Additional Resources

Additional Resources

- HP Industry Standard Server technology papers (server consolidation)

  http://h18004.www1.hp.com/products/servers/technology/whitepapers/adv-technology.html - 7

- HP ProLiant Consolidation Tool for Microsoft SQL Server

  http://h71019.www7.hp.com/ActiveAnswers/cache/70724-0-0-0-121.aspx

- Data Centre Advisory Council (DCAC) Server Consolidation Best Practices

  http://www.microsoft.com/windows2000/server/evaluation/business/overview/scalable/bpdcac.asp

- Best Practices for Application Server Consolidation using Internet Information Services (IIS) 6.0

  http://www.microsoft.com/business/reducecosts/efficiency/consolidate/iiswhpaper.mspx

Additional Resources

- Server Consolidation: Strategies and Best Practices for Reducing Costs in Windows Environments

  http://www.microsoft.com/seminar/shared/asp/view.asp?url=/Seminar/en/20030424vcon85/manifest.xml
- Best Practices: Solution Accelerator for Domain Server Consolidation and Migration

  http://www.microsoft.com/business/reducecosts/efficiency/consolidate/domconmig.mspx
- Server Consolidation 2004: Trends and Success Factors

  http://www.idc.com/getdoc.jsp?containerId=31399
- Infrastructure Consolidation: Update and Best Practices

  http://www.metagroup.com/us/displayArticle.do?oid=34082
- CIO Update: Server Consolidation Can Offer a Range of Benefits

  http://www.gartner.com


invent

HP WORLD 2004

Solutions and Technology Conference & Expo

Co-produced by:

interex

shared knowledge • shared power

encompass

AN HP USER GROUP

RECOMMENDED TRAINING VENUE FOR THE

HP Certified Professional