

# Par 4 Professional Services Approach

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## Professional Services Approach

Par 4 will work in a collaborative fashion with your team through a series of structured workshops supplemented by engineering and implementation activities. The project will follow a progression that begins with assessing the physical and logical scope of the new computing infrastructure, and ends with actual implementation of technologies recommended. Typically, Par 4 staffs this design team with consistency at the architecture level and subject matter experts who maintain technical depth in specific areas of study. Par 4 Enterprise Services conducts projects in a consistent and proven approach. The approach proceeds along a path that includes:

- Assessment of the current target infrastructure environments
- Development of the overall Design to ensure that it accommodates the business and technologies requirements
- Design Validation / Lab Testing and Pilot of the new environment
- Production implementation/migration
- Support and handoff services for the new platforms

Ownership and Knowledge Transfer are our key ingredients to the success of any project. We expect to involve IT staff and business decision makers throughout the engagement as appropriate.

## Typical Virtualization Project

### Project Kickoff Meeting

In the project kickoff meeting, initial project roles and responsibilities are introduced and defined, and the scope of the project and its associated phases, assumptions, and expectations are discussed. The goal of the project kickoff meeting is to ensure all project Participants take the project's first step forward in unison, with a shared understanding of the project's high-level operational goals, technical purpose, and approach.

### Phase I – Virtualization Assessment

The objective of this phase is to assess the business and technical components of the project as well as gather all relevant information that will be used to reach informed decisions during the ensuing design phase. This activity will have no impact on the production system.

This assessment will revolve around the installation and deployment of the VMware Capacity Planner application. This framework monitors resource usage of the machines that are being considered for virtualization. The application can be installed on a local server or workstation. The CP application queries both Windows and Linux systems through industry standard protocols such as WBEM, SNMP and WMI to gather performance statistics. Information will also be incorporated from the Exchange design in this phase. Once this data has been captured over the course of a few days, the results are compiled and analyzed. This data is then used to provide the necessary information to design the overall

virtual infrastructure. The following represents the tasks associated with PAR 4's approach to this phase:

#### Tasks

- Install and configure the VMware Capacity Planner Application
- Configure the service to poll the existing infrastructure servers to gather performance data
- Analyze the existing storage architecture and configuration
  - RAID Groups
  - LUN Assignments
  - Port Configurations
  - Available Capacity
- Analyze the existing network infrastructure and its ability to support a virtualized environment
- Gather the necessary information with client Subject Matter Experts. This will be facilitated through questionnaires and interviews with IT management in the following functional areas as it pertains to Virtual Infrastructure:
  - Servers
  - Storage
  - Networking
  - Security
  - Backup
- Analyze server assessment materials
- Create Assessment document detailing Assessment findings

#### Duration

X Days

#### Deliverables

- Assessment document detailing the Assessment findings

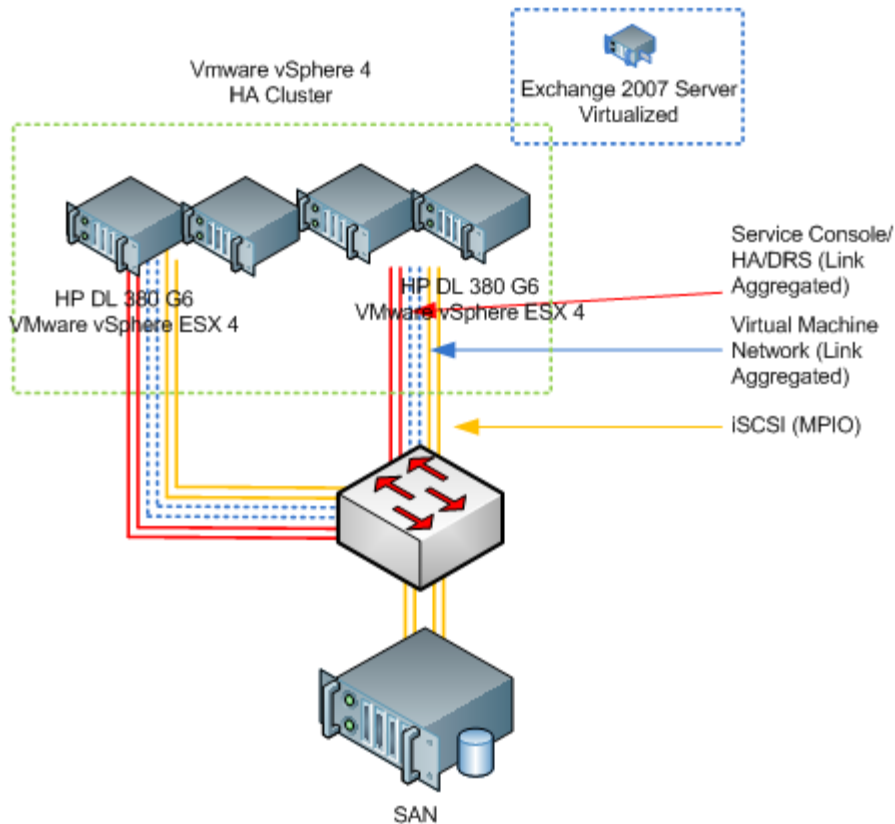
## Phase II – Virtualization Architecture and Design

The design consulting is intended to ensure alignment of client's business and technological goals with capabilities inherent to the Virtual Infrastructure ("VI") and provide a design for deployment. A P2V migration plan will be also generated. Systems having the least impact on the user/customer base will be targeted first for P2V migration; subsequent systems will be migrated ranging from least critical to business dependability. The following represents the tasks associated with Par 4's approach to this phase:

#### Tasks:

- Identify a "standard" Windows Server 2008 configuration. Par 4 will then create a virtual machine (VM) "template" based on this server configuration that can be deployed as needed.
- Create VI Design to include the following:
  - Network Connectivity and Layouts
- Physical layouts between network equipment

- VMware hosts
  - Servers
  - Data access to Guest OS
- Logical networks including subnet and VLAN requirements
- Performance, failover and throughput configurations for both physical and virtual networking.
- Connectivity to the SAN - iSCSI or Fiber Channel layout and configuration
  - EtherChannel
  - Storage Design
- Logical and Physical diagrams of recommended storage layouts
- Size and number of shared VMFS volumes and/or Raw LUNS
- SAN Connectivity
  - EtherChannel
  - MPIO
  - Physical Layouts
- Server models
- Hardware configuration
  - Virtual Center Design
- Virtual Center Management Server
- Virtual Center Database
- Network Connectivity
- Virtual Center license server
  - VMware Guest Template Configuration
- Virtual Infrastructure Backup
  - Guest OS
  - VMware Virtual Center
- Evaluate and analyze the existing environment and prePare a migration/upgrade plan based upon the follow focus points:
  - System Resource Utilization
  - Average/Peak Disk I/O
  - Memory Utilization
  - Bandwidth Usage
  - Suitability for P2V migration.
  - Impact upon business functions
  - Example:



**Duration**

X Days

**Deliverables**

- Design document
- Design Validation Documents / Test Plan
- VI Implementation Plan

**Phase IV – Physical to Virtual Migration of Five Servers**

The objective of this phase is to migrate the five physical infrastructure servers to Virtual Servers. The following represents the tasks associated with Par 4’s approach to this phase:

**Tasks**

- Migrate up to five production servers (during normal business hours)
- Verify network connectivity to and from all server and storage systems.
- Perform P2V migration on selected infrastructure systems.
- Begin P2V migration of selected servers
- Boot the following systems via VMware Converter Boot CD and perform block by block conversion.
  - Application conversion process (Generalized)

- After the conversion process has completed, an initial VM snapshot will be taken. This will allow us to revert a point in time after the conversion in case of any issues. No need to re-import the system
- Removed any unused/undetected/hidden drivers and devices
- Perform check disk tasks
- Verify network and application integrity
- Ensure system is optimal, create production snapshot, remove initial snapshot. At a later date the production snapshot can be removed.
- Train Customer IT staff on the physical to virtual migration process
- Decommission Legacy Systems (as appropriate)

**Duration**

X Days

**Deliverables**

- Five Servers migrated to Virtual Servers
- Documented procedures for migrating the remaining Physical servers

**Phase V – Virtualization Knowledge Transfer**

The objective of this phase is to provide knowledge transfer to Customer IT staff. A day of knowledge transfer will be scheduled to review the project details, answer questions and hand over support to the Customer standard support structure.

**Tasks**

- Knowledge Transfer

**Duration**

x Day

**Deliverables**

- Knowledge Transfer

**Project Management Approach**

The following includes the method and approach used to manage the overall project and client correspondence as well as the specific roles and responsibilities of the Project Manager. Additionally, a high level overview of the project, from start to finish, is included.

**Par 4 Project Management Methodology**

Par 4 Corporation applies a standard project management methodology consisting of Planning, Tracking, Oversight, Documentation, and Communication to each project. The Par 4 Project Manager monitors and manages each engagement to ensure consistent delivery and satisfaction with our services. Modeled after industry best practices published by the Project Management Institute (PMI), we break down each engagement into measurable phases/tasks and milestones to ensure expectations are being

met, appropriate resources are being dedicated, and our implementation model is working as desired. Using this approach allows us to tailor our offerings during the lifecycle to accommodate on-going environment changes and dynamic client needs. Our approach incorporates the following activities:

- Vision/Objective definition
- Creation of project scopes supporting Vision, each scope including purpose, phases, tasks, assumptions, timeline, and effort
- Assignment of appropriate resources to each task
- Project tracking and control by way of kickoff, status, and milestone acceptance meetings, project plans, change control processes and forms, and other tools used to manage scope, schedule, budget, status reporting, and staffing
- Assist in the creation and review of project documentation. Obtain client approval / signoff.
- Issue tracking and resolution
- Procurement of hardware / software
- Development of standard operating procedures and project documentation
- Performance of knowledge transfer and formal project acceptance
- Incorporate quality in process, procedures and deliverables

Par 4 maintains a separate practice of full time Project Managers who focus solely on the theories and execution of project management. We utilize industry-standard methodologies and tools for project scope management, time-line management, cost containment, quality assurance, risk assessment, and procurement.

### ***Par 4 Project Manager Roles and Responsibilities***

The following outlines the roles and responsibilities of the Par 4 Project Manager:

- Conduct Project Kickoff, Status and Closure meetings
- Act as a single point-of-contact between Customer and Par 4
- Ensure thorough project communication with project stakeholders and effected factions
- Produce weekly status reports consisting of the following information:
  - Tasks and milestones completed for the given week
  - Tasks and milestones planned for the coming week
  - Project issues and/or risk areas
  - Pertinent scope and change management information
  - Prioritized action items
- Create and maintain the project plan (MS Project format) for progress tracking and schedule management
- Manage project scope and respond to change requests
- Define and manage the escalation process
- Review all Project Documentation and Deliverables
- Oversee knowledge transfer to Customer occurs throughout all project phases