Enabling The Data Centre Evolution Towards Cloud Computing

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Data Centre Evolution
Where does your journey begin?

From silos...to Dynamic Data Center and IT as a service

- Virtualize
- Standardize
- Self-Service

Centralize
Consolidate
Automate
What Really Happened
Typical Customer Comments

- The users hate me
- My user want to connect iOS and Android
- Server performance is slow
- My backups aren't completing
- I have business & government compliance requirements
- The CEO wants to go green
- I don't know if my DR works
- My data center is full
- I need to keep my tapes for 7 years
- It takes 8 weeks to provision hardware
- Virtualization is only for test/dev
- I'm running out of storage!
- My environment is complex
- I need DR!
- I love your technology but can't afford it
- Staff are expensive
- Do I need Cloud?
- Tape is cheaper than disk
Why IT Happened - Some Facts

Your Environment is growing

“Storage & Infrastructure
Growth rates 50%- >80% per annum”

Most organizations have no information about how data is created in their environment

• “Duplicate files >20%” / “Illegal files >15%”, “Dormant data 50-96%”

• “Duplicate block level data being backed up - >80%”

• “People think tape is cheap”

• “Most don’t have shared storage”

Backup, DR is expensive – and it fails!

Archival policies most likely won’t work

Budgeting issues

Wasting energy and paying for it

Only 10-15% of your CPU utilized

Misbalanced storage utilization

Your environment isn’t as secure as you’d like

Data leakage - Backup tapes un-recoverable - Backup used as archive
Data Centre Evolution – What Should Happen

**Definition:**
- Multi-Tenant
- Dynamically provisioned & optimised infrastructure
- Self-service
- Hosted within safe confines of your own data centre

**Business Benefits:**
- Lower CAPEX & OPEX
- Predictable costs
- Faster time-to-market
- Always on
- Security & privacy of data

Reduce Cost
Reduce Risk
Improve Service Levels
Data Centre Evolution
From Virtualization to ITaaS

Traditional Virtualised Data Centre

Virtualized + Multi-Tenant + Automated + Self-Service

ITaaS

Business Needs
- Lower costs
- Pay as you go
- Faster time-to-market
- Always on availability
- Data security and privacy
- Lower carbon footprint

Infrastructure Needs
- Secure multi-tenancy
- Service automation and management
- Data mobility
- Integrated data protection & security
- Higher asset utilisation
The “What”

Architecture & Components of a Private Internal Cloud
Architecture of a Private Internal Cloud

Components

IT as a Service (ITaaS)

- Applications
- Compute | Virtual & Physical
- Unified Network Fabric
- Unified Storage
  - Efficiency & Data Mobility
  - Integrated Data Protection

IaaS

Service Catalog

Multi-Tenant Service Management
Architecture of a Private Internal Cloud

Storage

IT as a Service (ITaaS)

IaaS

Multi-Tenancy Support
Secure data partitioning on shared, virtualised infrastructure

Service Automation & Management
Automation of provisioning, integrated management, usage metrics, and chargeback

Always-On & Data Mobility
Move data around regardless of location, with continuous business operations

Storage Efficiency & Scalability
Efficient and scalable storage technology to meet massive data growth

Integrated Data Protection
Fully integrated data backup, replication & security

Applications

Compute | Virtual & Physical

Unified Network Fabric

Unified Storage

Efficiency & Data Mobility

Integrated Data Protection
Architecture of a Private Internal Cloud

Network Capabilities

- **Multi-Protocol Support**
  Unified “one-wire” connectivity to storage via any protocol, plus access to other networks and services

- **Service Automation & Management**
  Defined protocol and QoS offerings, provisioning automation and integrated management

- **Always-On & Ubiquitous Access**
  Full network redundancy maximises service availability, plus anywhere connectivity allows data mobility

- **Performance & Scalability**
  Data Centre Lossless Ethernet at 10Gig speeds deliver the performance and scalability critical to a shared infrastructure
Architecture of a Private Internal Cloud

Compute

IT as a Service (ITaaS)

- Applications

Compute | Virtual & Physical

Unified Network Fabric

Unified Storage

Efficiency & Data Mobility

Integrated Data Protection

Manage physical and virtual servers with the same tools and processes

Compute Capabilities

Industry Standards
Stable & universal OS with rich ecosystem of supported applications, drivers and management suites

Performance & Scalability
Support for hundreds of CPU Cores & Terabytes of RAM per physical server to deliver the scalability for a private cloud

Efficiency
Dynamic adjustment of CPU power state to match workload, including core parking

Integrated Management
Manage physical and virtual servers with the same tools and processes
Architecture of a Private Internal Cloud Management

IT as a Service (ITaaS)
- Applications
- Compute | Virtual & Physical
- Unified Network Fabric
- Unified Storage
  - Efficiency & Data Mobility
  - Integrated Data Protection

Multi-Tenant Service Management

Management Capabilities

Integrated Management
Unified management, monitoring, reporting & alarming of physical and virtual servers, network & storage

Service Levels & Service Catalog
Define a Service Catalog with policies for data placement, fabric technology, and compute resources

Automation & Self-Service
Allow end-users to request new “services” through a portal. Automation software then orchestrates the provisioning of the appropriate compute, network & storage resources.
The “How”
Defining your Journey and the Solutions enablement investments required
Your Journey is not Technology Driven, it’s Technology enabled

- Improved customer experience
- Competitive differentiation
- Extend Resources now focused on value creation versus managing complexity
- Converge Platform for true business agility
- Consolidate Greater control
- Lowering complexity
- Reduce risk and costs
- Further reduce costs
- Improve productivity
- Speed to market
- Improved flexibility
- React to change
- Lowering complexity
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- React to change
- Competitive differentiation
- Improved customer experience

Disparate Multiple SLA’s & Vendors
Fragmented Complexity
Sub optimal
High costs

Business Agility

YOU are HERE!
VIFX - Storage Solution Services

Leading services to create Secure and make Available DATA in a Virtualized/Cloud Environment

Optimization

- Storage Provisioning & Storage Automation
- Tiered Storage Architecture
- Business Continuity & Virtual DR Solutions

Implementation

- Storage Consolidation & Storage Virtualization
- Data Migration & Data Archival
- Backup & Recovery Architecture

Strategy

- Storage Infrastructure & Enterprise Storage Architecture
- Data Analysis & Data Classification
- Data Protection Strategy

Stage

- Infrastructure Management
- Information Management
- Data Protection

Services
Virtualization remains a significant opportunity across all infrastructure tiers.

- **Optimization**
  - Automated Provisioning & Lifecycle Management
  - Network, WAN, & Bandwidth Optimization
  - Client Application Packaging & Distribution

- **Implementation**
  - Server Consolidation & Server Virtualization
  - Universal Desktop Access & Security
  - Client Application Virtualization

- **Strategy**
  - Server Virtualization Assessment
  - Desktop Virtualization Assessment
  - Application Virtualization Assessment

- **Stage**
  - Server Virtualization
  - Desktop Virtualization
  - Application Virtualization

**Services**
VIFX Cloud Solution Services

Providing strategy through architecture and infrastructure delivery capabilities

- **Optimization**
  - IT-as-a-Service Model & Service Catalogue Development
  - Hybrid & Federated Cloud Implementation
  - Cloud Self-Service Portal Implementation

- **Implementation**
  - Infrastructure Virtualization & Consolidation
  - Cloud Application & Data Migration
  - Cloud Infrastructure Build-Out (Pilot to Prod)

- **Strategy**
  - Enterprise Cloud Reference Architecture (Server, Storage, Networks, Apps)
  - Public Cloud Readiness Assessment
  - Cloud Strategy, Business Model & GTM Plan

- **Stage**
  - Private Cloud
  - Public Cloud (for Enterprises)
  - Public Cloud (for SP’s)

**Services**
The “Where”

Where do we see this being executed effectively across the Industry today?
Case Study: Transformation at BT

On the Way to Recycling

New Model Data Center
BT Reduced Cost & Risk, Improved SLA’s

Reduce and Consolidate physical assets

Significantly remove cost

Dramatically improve business Agility

Eliminate complex management

8 Month payback. Business breakthrough.
Case Study: Fonterra

- World’s Leading Exporter of Dairy Products
  - $12B USD annual turnover
  - Responsible for over 1/3 of total international dairy trade
- Key supplier to major worldwide brands
  - Nestle, Danone, and McDonalds
- Businesses: Commodities, Ingredients, Consumer Brands
- Global Businesses = Massive data centre investments
Case Study: Fonterra

- **Environment**
  - Servers - Sun x4200
  - Storage - Heterogenous
  - VMware - VI3.5

- **Strategy**
  - Move as closely as possible to 100% Virtualized platforms

- **Deliverables**
  - NetApp Prof Services Partners completed an initial physical to virtual migration of 130 servers, completed over a 4 month period
  - Subsequently contracted to oversee the migration of another 200-400 servers before the end of Q1 2010

- **Enterprise DR Strategy**
  - NetApp Prof Services Partners completed the creation of a comprehensive Enterprise DR strategy for Fonterra
  - Detailing current and future state as well as a roadmap for implementation across the areas of Data Centre, Network, Storage, Platform, and Operating System
What are you waiting for?

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- Lowering complexity
- Further reduce costs
- Improve productivity
- Speed to market
- Improved flexibility
- React to change
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- Reduce risk and costs
- High costs
- Complexity
- Disparate Multiple SLA's & Vendors
- Sub optimal

You are here!

Innovation

Competitive differentiation

Improved customer experience

Services Management Approach