Enterprise Private Cloud Computing
Agenda

- Introductions
- Concerns and Opportunities
- Business Drivers
- Cisco Solutions for Enterprise Cloud
- The Compute Platform
- Cisco Automation Solutions
- Cloud enablement workshop
Concerns and Opportunities with Cloud
Blah Blah Cloud...

Ok, so “Cloud” just might be slightly overused...
About OnX Enterprise Solutions

About OnX
OnX Enterprise Solutions

- Global reach — USA, Canada, Europe and Asia Pacific
- Over 500 full time and 150+ specialized consultants
- $750+M annual revenue with over 100+M in services
- 5 High Availability Data Centers with multiple certifications
- Federated Cloud Center of Excellence Lab and Briefing Centers
- Cisco Partner of the Year 2011 – only certified Cloud Builder and Cloud Provider in Canada
- Momentum — developer of Digital Application Solutions enabling end to end offerings

We provide Managed Cloud Services, Digital Application Services, Professional Services and Integrated Hardware / Software Solutions
Breadth of Services…

**Hardware, Managed Services, Application Development**

**Client Site Technology Solutions & Services**
- Leading provider of integrated multi-vendor data center solutions
- Top vendor partnerships with over 800+ certifications
- Faster time to value with less deployment/migration risk

**OnX Data Center Managed Solutions and Services**
- Multiple redundant data centers
- Certified support staff for 24x7 managed services and support
- Enterprise client base demanding high availability for mission critical applications

**Digital Business Application Solutions and Services**
- Digital strategy and e-marketing services with optimized search
- Integrating web portals and mobile devices leveraging social media reach
- End-to-end application support

**Physical and Virtualized Solutions**
- Managed Hosting & Co-location
- Remote IT Management (NOC)
- Private & Shared Clouds
- Support & Maintenance Services

**Enterprise Software Services**
- Interactive Marketing Services
- Web/Mobile Application Development
- Legacy Application Integration
- Managed Application Services

**IT Business Management Software**
- Professional Services and Consulting
Journey to the Cloud

OnX’s natural evolution of our Co-Lo & Hosting
- Providing full Managed Services since 1999
- Multiple data centers managing over 4000 workloads
- Customer Assistance Center with ITIL based Runbooks
- Remote management and monitoring

OnX has been doing Clouds since 2007
- Over 2000 existing client workloads (UltraHosting.com)
- VMware Condo model cloud

Launched Semi-Private Cloud in 2010 – Gen2
- Secure self service—add/modify/remove
- Usage based hourly billing
- Template & snapshot management included
- Secure network connectivity (dedicated VPN/Firewall)
- Hybrid to existing managed hosting offering

Launched Federated Cloud in early 2012 – Gen3
- Enterprise Grade: Vblock based, Tier 3 Data Centers
- Highly Scalable—can expand 20x in less than 60 days
- Tiered storage option—performance vs capacity
- Tailoring abilities for specific SLA’s
- Metered resources - reserve vs allocation vs pay as you go
- Self service portal and programmable API’s
- Available now for quick time to market
Business Drivers to the Cloud
Fear, Doubt, and Uncertainty Persist...

Business units are adopting cloud computing at a rate of **2.5x** to **5x** faster than IT according to the various analyst firms.

- **79%** of CxOs are hesitant to adopt cloud because of **fear of vendor lock-in**
- **75%** of CxOs are hesitant to adopt cloud because of **performance and availability concerns**
- **70%** of CxOs are concerned about **security** when thinking about the cloud
- **63%** of CxOs are concerned about the **integration** of various services involved with **delivery of critical business functions**

63% of CxOs are concerned about the integration of various services involved with delivery of critical business functions.
We are rapidly approaching…

… And Need To Address with Cloud

1 Trillion
Connected Devices

Millions
Applications

1 Zettabyte
1B Terabytes of Content

Web based Application Access

Collaboration

Mobility

Application integration

Lots of Content Storage & Archives
Benefits of the Cloud

- **Reduce** large Capital Expenditure outlay
- **Optimize** Operating Expenditures
- Improved **Time to Value** as either revenue, market penetration or ROI
- **Flexibility** and **scalability** to face unknown unknowns
- **Lower Risk** of commitments to unknowns
- Ability to meet **seasonable demands** without massive infrastructure build outs
Cloudy and Confusion

• Potential Concerns
  ▪ Security
  ▪ Performance/Availability
  ▪ Transition/Integration
  ▪ Management

• Cloud Type Confusion
  ▪ IaaS vs PaaS vs SaaS
  ▪ Everything as a Service
    ▪ DBaaS, StaaS, DTaaS, CaaS, etc.

• Cloud Delivery Misunderstanding
  ▪ Private/Public/Hybrid/Community
  ▪ Virtual Private/Semi-Public/Semi-Private

Rapidly changing technologies create a concern of early adoption.
OnX Cloud Computing . . .

Defining Your Cloud
Defining the Cloud

Cloud computing is a pay-per-use model for enabling available, convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction.

- On-demand self-service
- Ubiquitous network access
- Location-independent resource pooling
- Rapid elasticity
- Pay-per-use

Organizations should clearly define their own requirements.
A World of Cloud Options

Cloud Support Services
- Monitor, Backup
- Manage and Secure
- the cloud notify on
- SLA metrics with
- capacity planning
- thresholds

Infrastructure as a Service (IaaS)
- Cloud computing at
- the VM and/or storage
- file/object level that
- allows self serve IT
- infrastructure
- administration

Platform as a Service (PaaS)
- Developer based
- ecosystem of the dev
- platform & middleware
- that is cloud ready for
- programmability, scale,
- availability and agility

Software as a Service (SaaS)
- Business based
- End-User
- Computing with
- client side
- administrative
- control

Operational focus  Technical focus  App dev focus  Business focus
Federation of United Nations

Cloud Delivery Strategy

Internal/Private
IT capabilities are provided “as a service,” over an intranet, within the client and behind the firewall

Hybrid & Community
Secure hosted service delivery behind client firewall

Public
IT activities / functions are provided “as a service,” over the Internet to anyone

Client Data Center
Private Cloud

Client Data Center
OnX Managed Private Cloud

Client
OnX Hosted Private Cloud Services

Client A
OnX Hosted Shared Cloud Services

Client B

Users
A
B

Public Cloud Services
Federation of United Nations

- federates client and OnX via security, burst, disaster recovery, service desk and API
  - Avoids islands and silos
  - Cloud to cloud or vSphere or physical
Building a Cloud: Challenges

- **Multi-tenant – preparing for merger/acquisitions**
  - Security from identity, edge protection and monitoring
  - Network isolation, scalability and management – vLAN’s, VXLAN, Nexus1000V
  - Isolation of reporting, management, dashboards, SLA’s etc.

- **Backup/recovery to Disaster Recovery**
  - Without impacting SLA’s of others and while enabling dynamic self serve
  - Business continuity of cloud workloads between sites – vaulting to replication

- **Meter and Measure – and capacity planning**
  - Software license metering in dynamic self serve cloud
  - Resource consumption – Reserve to Pay as You Go (PAYG)
  - Billing – how to segment costs of all variables vCPU, vRAM, storage etc.

- **Migration – on/off ramps of the cloud**
  - Moving cloud VM’s – cloud to cloud, virtual to cloud etc between DC’s
  - P2V, V2V and I2V translations
Self Serve vs Fully Managed Clouds

Physical or virtual – dedicated hosting provides clients with complete customization of service levels to address specific security and performance needs while minimizing flexibility.

Traditional Managed Hosting // OnTask DPH (Dedicated Private Hosting)
Self Serve vs Fully Managed Clouds

**Self Serve Cloud // OnTask VDC (Virtual Data Center)**
VDC provides clients with complete self serve portal & API abilities to configure tiered VM’s, storage, networking, load balancing and firewalls that includes pay as you go burst and reservation cost rates – ideal for dev/test, web, training and processing use cases.

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**Managed Multi-tenant Cloud // OnTask VMT (Virtual Multi-Tenant)**
VMT provides clients with greater support of a fully managed environment while still enabling cost effective flexibility at scale. More specific tailoring for DR, performance and security SLA's over self service makes it ideal for compliance, desire to SaaS wrap apps and consistently “on” workloads.

**Traditional Managed Hosting // OnTask DPH (Dedicated Private Hosting)**
Physical or virtual – dedicated hosting provides clients with complete customization of service levels to address specific security and performance needs while minimizing flexibility.
Dedicated Private Cloud Hosting

OnX Federated Cloud Solutions

WORLD WIDE WEB

FIREWALL

LOAD BALANCER

APPLICATION SERVERS
DATABASE SERVERS

MANAGED HOSTING
CUSTOMIZED DEDICATED SERVERS

ON-DEMAND COMPUTE, HOSTING, STORAGE & SERVICES

CLOUD HOSTING/EMAIL & APPLICATIONS
ON-DEMAND AND SCALABLE

STORAGE & BACKUP
DEVELOPMENT SERVERS
WEB SERVERS
SHAREPOINT SITE
BUSINESS EMAIL
Federated Multi-tenant

OnX Federated Multi-tenant Cloud Solutions

- Ideal for Self Serve provisioning virtual machines
- Tiered storage, network segments and load balancing
- Pay-as-you-go or contract options

OnTask Virtual Data Center

OnTask Virtual Multi-tenant

- Fully managed resources in the multi-tenant cloud dual data center environment
- Ideal for predictable infrastructure needs with flexibility for hybrid environments
Technology Consumption

- Reference architecture and ingredients
- Getting complete Bill of ALL Materials is challenging
- Layouts for floorspace, power/cooling
- Cabling alone can be a nightmare and waste time
- High availability design and testing discipline required
- Performance/scale challenges in future planning

Build it all your self

Focus on logical build only

- Speed time to value with best of breed converged infrastructure
- High availability design and testing included
- Performance/scale planning in modular form
- Focus time on value of logical layers
- Enables standardization & remote management
Cisco Data Center Fabric Characteristics

**Open**
- Standards-based
- Published API
- Broad ISV support

**Integrated**
- Unified Compute, Network storage & Application Services
- Secure
- Holistic Management

**Flexible**
- Customizable elastic infrastructure
- Auto provisioning
- Investment protection

**Secure**
- Isolation of virtual zones
- Context-aware policies
- Defense-in-depth

**Resilient**
- Fault-tolerant
- Stateless Computing
- Integrated OAM

**Scalable**
- **1G → 100G**
- 15,000 1GbE ports
- 10,000+ 10GbE ports
- 320 blades/system
- 1000+ VM/system
- Low latency
Physical → Virtual → Cloud Journey

**Physical Workload**
- One app per Server
- Static
- Manual provisioning

**Virtual Workload**
- Many apps per Server
- Mobile
- Dynamic provisioning

**Cloud Workload**
- Multi-tenant per Server
- Elastic
- Automated Scaling

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**Nexus 7K/5K/3K/2K**
- Nexus 1000V, VM-FEX

**WAAS, ASA, NAM, ACE**
- Virtual WAAS, VSG, Virtual ASA

**UCS for Bare Metal**
- UCS for Virtualized Workloads
Virtual Appliance

- Virtual ASA
- vWAAS
- VSG
- VSM

Nexus 1010

- Primary: VSM, NAM, VSG
- Secondary: VSM, NAM, VSG

Virtual Blades
- Virtual Supervisor Module (VSM)
- Network Analysis Module (NAM)
- Virtual Security Gateway (VSG)
- Data Center Network Manager (DCNM)*

VXLAN
- 16M address space for LAN segments
- Network Virtualization (Mac-over-UDP)

vPath
- Service Binding (Traffic Steering)
- Fast-Path Offload

VSM: Virtual Supervisor Module
VEM: Virtual Ethernet Module
vPath: Virtual Service Data-path
VXLAN: Scalable Segmentation
VSG: Virtual Security Gateway
vWAAS: Virtual WAAS
Virtual ASA: Tenant-edge security
Physical, Virtual, Cloud: End-to-End Security

**Physical**
- Scalable in-line performance
- Data center edge security policies
- Flexible deployment options

**Virtual & Cloud**
- Proven firewall to secure your cloud
- Tenant-edge to VM-specific policies
- Automated, policy-based provisioning

**Physical Appliances and Modules**
- Multi-scale™ data center-class ASA devices

**Cloud Firewall**
- Enhanced cloud security

- Cisco ASA 5585-x
- ASA SM for Catalyst 6500
- Cisco Virtual Security Gateway (VSG)
- Cisco ASA 1000V

New!
Cisco’s Virtual Security Architecture

- Orchestration / Cloud Portals
- Virtual Network Management Center
- Nexus 1000V

Extending existing **operational workflows** to virtualized environments
Extending **network services** to virtualized environments
Extending **networking** to virtualized environments

- Virtualized
- Agile
- Policy-Driven
- Multi-tenant
Securing Tenant Edge with ASA 1000V

• Proven Cisco Security…Virtualized
  • Physical – virtual consistency

• Collaborative Security Model
  • VSG for intra-tenant secure zones
  • ASA 1000V for tenant edge controls

• Seamless Integration
  • With Nexus 1000V & vPath

• Scales with Cloud Demand
  • Multi-instance deployment for horizontal scale-out deployment
Cisco FabricPath
Scaling and Simplifying Layer 2 Ethernet Networks

- Eliminate Spanning tree limitations
- Multi-pathing across all links, high cross-sectional bandwidth
- High resiliency, faster network re-convergence
- Any VLAN, any where in the fabric eliminate VLAN Scoping

Traditional Spanning Tree Based Network - Blocked Links

Cisco FabricPath Network - All Links Active

Up to 16 Agg switches
160+ Tbps switching capacity
Connecting Virtualized Data Centers
Compute & Cloud Integration, Location transparency

L2 Domain Elasticity
- Fabric Path/TRILL, vPC
- LAN Extensions, OTV

IP Localization
Optimal Routing
- Route Portability
- LISP

Service Localization
- Any Service Anywhere

Fabric Consolidation
- Unified Fabric & I/O
- Device Virtualization
- Segmentation

Device Virtualization
- VDCs,
- VRF enhancements
- MPLS VPN

Storage Elasticity
- SAN Extensions

VM-Awareness
- VN-Link intelligence
- Port Profiles

Workload Mobility
LAN Extensions (VPLS, OTV)
SAN Extension

VN-Link Notifications
Location ID/Separation Protocol (LISP)
Global workload Mobility for the Cloud

Benefits:
• Seamless Global Workload Mobility across cloud
• Network scalability, secure Multi-tenancy
• Simplified IPv6 transition

Feature:
• IP address Portability
• On-Demand Route lookup
• IPv4/IPv6 encapsulation

LISP decouples host IP identity from host location enabling global IP address portability

Cisco NX-OS: Delivering Location Independence with OTV and LISP
Overlay Transport Virtualization – OTV
Simplified Layer 2 Extension

- IP based Ethernet (L2) VPN solution
  - Logically a Shared Ethernet Segment
  - MAC routing
  - IP encapsulated forwarding
- Core and Site Transparency
  - Works across IP/MPLS
- Packet Switching
  - Multi-point connectivity
  - No PW state preserved
  - Optimal m-cast replication
- Full cross-sectional BW
  - Equal cost multi-pathing
  - All-active multi-homing

Protocol Learning
- No STP: Built-in loop prevention
- Failure domain is bound
- Floods/b-casts can be suppressed
- Seamless adds/removes
LAN Extensions: VXLAN over OTV

- OTV is part of the IP core and provides
  - An e2e multicast transport over any network
  - Connectivity across different Autonomous Systems (organizations)
- VXLAN is transported over OTV to enable e2e connectivity
- Non-VXLAN hosts use OTV LAN extensions natively
Cisco UCS
“The” Compute Platform for the Cloud
Subject matter experts consumed by manual configuration chores

Serial processes and multiple touches inhibit provisioning speed

Configuration drift and maintenance challenges

• QoS settings
• Border port assignment per vNIC
• NIC Transmit/Receive Rate Limiting

• VLAN assignments for NICs
• VLAN tagging config for NICs

• Number of vNICs
• PXE settings
• NIC firmware
• Advanced feature settings

• Remote KVM IP settings
• Call Home behavior
• Remote KVM firmware

• Server UUID
• Serial over LAN settings
• Boot order
• IPMI settings
• BIOS scrub actions
• BIOS firmware
• BIOS Settings

• FC Fabric assignments for HBAs

• Number of vHBAs
• HBA WWN assignments
• FC Boot Parameters
• HBA firmware

• RAID settings
• Disk scrub actions

• LAN

• SAN
Unified, Embedded Management
Aligns People, Policy, and Configuration With Workload

1. Subject Matter Experts Define Policies
   - Storage SME
   - Server SME
   - Network SME

   Policies Used to Create Service Profile Templates
   - Server Policy…
   - Storage Policy…
   - Network Policy…
   - Virtualization Policy…
   - Application Profiles…

2. Server Name
   - UUID, MAC, WWN
   - Boot Information
   - LAN, SAN Config
   - Firmware Policy

3. Service Profile Templates
   - Create Service Profiles

4. Associating Service Profiles with Hardware
   - Configures Servers Automatically
Traditional Blades vs. Cisco UCS System

Operational Management

- Multi-Chassis Identity Management (additional redundant Servers)
- Health & Monitoring (additional redundant Servers)

- Ethernet
- Fibre Channel
- Management

Servers 1-16
Servers 17-32
Servers 33-48
Servers 49-64
Servers 65-80
Servers 81-96
Servers 97-112

Servers 1-8
Servers 9-16
Servers 17-24
Servers 25-32
Servers 33-40
Servers 41-48
Servers 49-56
Servers 57-64
Servers 65-72
Servers 73-80
Servers 81-88
Servers 89-96
Servers 96-104
Servers 105-112 +
Cisco UCS:
A single, logical, expandable blade server chassis

8 Cisco UCS Blades
1 UCS Manager
3 Management IP Addresses

16 Cisco UCS Blades
1 UCS Manager
3 Management IP Addresses

24 Cisco UCS Blades
1 UCS Manager
3 Management IP Addresses

32 Cisco UCS Blades
1 UCS Manager
3 Management IP Addresses
Wire for Bandwidth, Not Connectivity
Changing the Game

- Direct Attach
- LAN Switch
- SAN Switch
- SAN

- 1 Link: 20 Gb per chassis
- 2 Link: 40 Gb per chassis
- 4 Link: 80 Gb per chassis

Wire for Bandwidth, Not Connectivity
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UCS Manager

- Single point of management for UCS system of components
  - Adapters, blades, chassis, fabric extenders, fabric interconnects

- Embedded device manager
  - Discovery, Inventory, Configuration, Monitoring, Diagnostics, Statistics Collection
  - Coordinated deployment to managed endpoints

- APIs for integration with new and existing data center infrastructure
  - SMASH-CLP, IPMI, SNMP, SOL
  - XML-based SDK for commercial & custom implementations
UCS Technology Supporting Cloud Pooling of Hardware Resources

- Optional Grouping of Server Hardware into Pools by Organization
- Server Pool Qualification Policy to get granular control for Service Profiles assigned within a given pool of hardware
UCS Technology Supporting Cloud
Templates for Operational consistency

- Tightly Controlled Centralized Policy
  - Easier Audit
- Policy Managed by Security and Network Administrator
- Applicable to Physical and Virtual Servers
  - Tied into Service Profile Templates
  - Tied into vNIC Templates
- Highly Automated Process to Add Connectivity to Server with Policy
Rack Server Scalability Through UCS

Server Layer Scales Independently from Management and Access Switching

2 Access Layer Switches | 1 Embedded Management Module

Add 1 Chassis and 2 C-Series

Continue Adding C-Series Servers

1 hop
Cisco VIC and VIC 1280

Virtualizable Interface Card

Converged Network Adapter designed for both single-OS and VM-based deployments
  • Pushes 256 switch ports inside the server
  • For bare metal or hypervisor deployments
  • PCIe compliant

High Performance
  • 2x 10Gb bandwidth (M81KR / 1st Gen VIC)
  • Dual 4x 10Gb bandwidth, 80Gb Total per Host (VIC 1280 / 2nd Gen VIC)
  • >600K IOPS

Key Value Proposition

1. Single Adapter for all I/O workloads
  • Up to 256 Interfaces: Ethernet vNICs and FC vHBAs
  • Simplified Management from the network

2. Control plane integration with vCenter
  • vNIC interface coupled to Virtual Machine
  • vNIC interface moves with VM (vMotion)
  • Bypass vSwitch to eliminate extra layer of switching
  • Reduce CPU overhead with Hypervisor Bypass
Extending FEX Architecture to the VM layer

One Network
Virtual Same As Physical

- Consolidates virtual and physical network
- VM vNIC attached to the network using VM-FEX and gets a dedicated port on switch
- Operates in Standard (Emulated) or DirectPath I/O (UPT) Mode
- Uses Pre-standard IEEE 802.1Qbh

*IEEE 802.1BR pre-standard
Cisco Automation Solutions for Private Cloud Computing
Existing Provisioning Processes Complex, Time-Consuming, Expensive

Application Development
- Call or Email IT Operations
- Architecture Reviews
- Approval Process
- Track Down Status

IT Infrastructure/Ops
- One-Off Custom Server Builds
- Incomplete Requirements
- Add Security, Back-up, etc.
- Exception Management

IT Management
- No Standard Process
- No Visibility into Future Demand
- Are SLA’s Being Met?
- No Data to Track Cost

Existing Provisioning Processes
Complex, Time-Consuming, Expensive
The self-service paradigm has fundamentally shifted the way we need to think about IT.
Setting the Bar for Enterprise IT

Standard Offerings

Instance Types

Standard Instances

Instances of this family are well suited for most applications:

- Small Instance (Default): 1.7 GB of memory, 160 GB of local instance storage, 32-bit platform
- Large Instance: 7.8 GB of memory, 64 EC2 Compute Units (CU), 850 GB of local instance storage, 64-bit platform
- Extra Large Instance: 15 GB of memory, 8 EC2 Compute Units (CU), 2.5 TeraBytes (TB) of local instance storage

Pricing Options

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<td>Standard On-Demand Instances</td>
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<td>Linux/UNIX Usage</td>
<td>$0.095 per hour</td>
<td>$0.13 per hour</td>
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<td>Windows Usage</td>
<td>$0.37 per hour</td>
<td>$0.52 per hour</td>
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Self-Service Ordering

Billing

Account Activity

Summary of This Month’s Activity as of December 8, 2009

Billing Cycle for New Reports: December 1 - December 31, 2009

AWS service usage changes on this page currently show activity through approximately 12/08/2009 05:39 GMT.
Service Delivery with Cisco Intelligent Automation for Cloud

End User

Self-Service Governance

Service Orchestration

Cisco Cloud Portal

- Compare Service Tiers and Options
- Guided Shopping ‘Wizard’
- Policy-Based Controls
- Rich Interactive Forms
- Ordering and Approvals
- Status Updates

Cisco Process Orchestrator

Global Orchestration

Element Managers

- UCS Manager
- VMWare vCenter
- EMC/ NetApp Storage Provisioning
- Cisco Tidal Server Provisioner

End User

Self-Service Governance

Service Orchestration
Cisco Intelligent Automation for Cloud

Service Catalog and Self-Service Portal
- Cisco Cloud Portal

Global Orchestration and Reporting
- Cisco Process Orchestrator

Adapter Framework
- Hardware Managers (e.g., UCS Manager)
- Virtualization Managers (e.g., vCenter, KVM, HyperV, Xen)
- OS/Software Provisioning (Cisco Server Provisioner)

Cloud Automation Pack

Compute Resources

Virtual Infrastructure

Network Resources

Storage Resources

CMDB

IT Service Management Tools

Billing/Chargeback

Monitoring and Governance
CIAC Integration with Vblock

- **vCloud Director**
- **vSphere / Vcenter**
- **Cisco Cloud Portal**
- **Cisco Process Orchestrator**
- **EMC UIM & Ops**
- **Vblock specific**

- UCS Manager
- Network Devices
- MDS
- Symmetrix VNX
Advisory Services & Workshops
Cloud Readiness Workshop

Overview

- Interactive half-day workshop session
- Key technology and business owners within the organization
- Review cloud concepts and identify potential cloud targets for further investigation
- Understanding of existing baseline:
  - Infrastructure
  - Applications
  - Business Processes
  - Business and Technology Drivers
- Refine target infrastructures, applications and processes
- Define potential cloud architectures
  - Private Cloud
  - Public Cloud
  - Federated Cloud

— plot a roadmap to cloud use cases
Cloud Capacity Planning Assessment

– transition to cloud with confidence

Overview

- Monitors a monthly window
  - Compare to a global standard deviation
- Identifies cloud candidates
  - CPU and memory utilization
  - Network and storage i/o and bandwidth
- Model aggressive & conservative scenarios
- Map to a future state of
  - OnTask DPH managed services
  - OnTask VMT managed cloud
  - OnTask VDC self serve cloud
  - Can be leveraged for other clouds and virtualization too
- Takes the risk out of sizing a cloud environment too small or too large
- Identify migration considerations (optional add-on)
Build Infrastructure for Peak Demand
Capacity Planning is Critical
Create a Process…  

Not a One Time Event

- Leverage educational resources and cloud readiness workshops to map your journey to the cloud with experts who have done it before
- Conduct a Capacity Planning Assessment to understand how to transition to cloud, gain the “low hanging fruit” and lower risk of change
- Test and Trial your path to the cloud to determine how your applications will run in the cloud
- Partner with experts who build and manage federated clouds for your site or theirs to enable your organization to successfully transform business strategy with optimized operations

Average IT organization dedicates 66 percent of its budget to day-to-day operations leaving little room for transformation of business strategy.
We value your feedback. Please be sure to complete the Breakout Sessions Evaluation Form.

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Follow @onxcloud for updates on Federated Cloud