Data Center Ecosystem & Integrated Stacks

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Need for Converged Infrastructure

Data Center Ecosystem

Introduction to Flex Pod & VBLOCK

Emircom: Making it happen in Middle East

Market Observations
  Enterprise Perspective
  Service Provider Perspective

VCE Solution

Emircom Capability

Project References
IT Challenges

- 24% pre-system deployment
- 24% turning on and preparing for applications
- 29% monitoring, update and patch management, health monitoring, troubleshooting

Organizational effectiveness hinges on IT efficiency
IT environment increasingly complex

Source: IDC, 2011
How Did We Get Here?

Source: IDC, 2011
# Importance of Converged Infrastructures

*Source: IDC 2012, 2011*

<table>
<thead>
<tr>
<th>Value</th>
<th>Business Drivers</th>
<th>Management Is Key</th>
<th>Customers Gain Most Advantage</th>
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</thead>
<tbody>
<tr>
<td>High Business Change = Need to Smooth Disruption to IT</td>
<td>Faster Time to Service/Market</td>
<td>Single Orchestration, Provisioning and Monitoring is Essential</td>
<td>Seamlessly Management Integration Across Converged, Heterogeneous and Hybrid Virtualization Environments</td>
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<td></td>
<td>Increased Cost Advantage/IT Efficiency</td>
<td>Highly Prescriptive Framework and Configuration Templates</td>
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<td>Greater Infrastructure and Operational Improvements</td>
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By implementing converged infrastructures, organizations can achieve faster time to service or market, increased cost advantage or IT efficiency, greater infrastructure and operational improvements, and streamlined management integration across various environments. Source: IDC 2012, 2011.
Integrated Solutions
Power of the Ecosystem

Applications
- Enterprise Apps
  - PeopleSoft
  - Siebel
  - SAP
- Databases
  - Oracle 11g
  - Microsoft SQL Server 2008
  - MySQL
- Business Analytics
  - SAP HANA
  - SAS
- Virtual Desktops
  - Citrix
  - VMware
- Vertical Applications
  - McKesson

OS / Hypervisor
- Windows Server
- VMware
- Novell

Management
- Novell
- EMC
- Symantec
- CA
- Zenoss
- IBM
- SolarWinds

Infrastructure
- VBLOCK and VSPEX
- FLEXPOD and EXPRESSPOD

Vertical Applications
- MEDITECH
- Murex
- Distra
FlexPod Data Center Platform
Prevalidated, Flexible Unified Architecture

- Cisco UCS® B-Series Blade Servers (and/or C-Series Rack Mount) and Cisco UCS Manager
- Cisco Nexus® Family Switches
- NetApp® FAS OnCommand™ Software Suite 10GE and FCoE

Features
- Standard, prevalidated, best-in-class converged platform:
  - Virtualized and nonvirtualized environments
- Flexible: One platform scales up or out to fit many mixed workloads:
  - Add applications and workload

Benefits
- Flexibility: Future-proof platform to meet today’s challenges and scale for future needs
- Built-in data center efficiencies: Lower total cost of ownership (TCO) with simplified deployments and rapid provisioning of resources
- Reduce risk: Prevalidated architecture with prescriptive sizing and design guides
Future-Proof, Validated FlexPod
Meeting Needs of Today and Tomorrow in One Platform

Production Balanced Infrastructure

VDI
- Higher performance blades and more input/output operations per second (IOPS)

Starting Out
- Deploy entry system, then scale up

Develop and Test
- More computing and less storage

Data Protection and Backup
- Less computing and more storage

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FlexPod Data Center Solutions

VMware® (Exchange, SQL Server®, SharePoint®, View™)
Citrix XenDesktop
SAP® applications
Microsoft® private cloud/Hyper-V™
Red Hat Enterprise Linux®

Secure Separation
- Hyper-V
- RedHat

Secure Multi-Tenancy
- VMware vSphere™

Validated workloads
Optional security
Bare-metal OS

Performance-balanced server, network, and storage components
Reduce Risk with FlexPod
Prescriptive Deployment Collateral

Wide range of resources available: validated design, deployment, and solution guides

- Step-by-step instructions for repeatable high-quality deployments, including these use cases:
  - Secure multi-tenancy and secure separation
  - VMware® vSphere® and View™
  - SAP® applications
  - Microsoft® Exchange applications
  - Citrix XenDesktop

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  - Microsoft® Exchange applications
  - Citrix XenDesktop
VBLOCK FROM VCE

DRIVING IT SIMPLICITY AND EFFICIENCY

SOLUTIONS

VCE & PARTNER SERVICES

VBLOCK FROM VCE

VCE Vision™ Intelligent Operations software

SYSTEM 100

SYSTEM 200

SYSTEM 320

SYSTEM 720

SPECIALIZED SYSTEMS

System 2X Performance

New

Now

New

New

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VCE THE CLEAR LEADER IN INTEGRATED INFRASTRUCTURE SYSTEMS - Gartner

**Integrated Systems Market**
- Integrated Workload Systems: 35%
- Integrated Infrastructure Systems: 38%
- Integrated Reference Architectures: 27%

**Integrated Infrastructure Systems**
- Server, shared-storage, and network hardware integrated to provide shared compute infrastructure

**Integrated Infrastructure Systems Market Share**
- VCE: 57%
- HP: 24%
- Hitachi: 15%
- Other: 1%
- IBM: 1%
- Dell: 2%

Source: Gartner – Market Share Analysis: Data Center Hardware Integrated Systems, 1Q11-2Q12, 30 Nov 2012 G00239623; 6 quarters Integrated Systems spend within the most recent 4 quarters was $3.6B
Cloupia Solution

- Turn-Key Solution;
  virtual and physical automated provisioning
  Hypervisor agnostic
- End-to-End Automation
  Model-based automation - no need for scripting
  Single-click policy-driven provisioning
  Ongoing lifecycle management

Customers are increasingly buying compute, network, storage, and virtualization as a single, converged system
Cloupia for Converged Infrastructure
ExpressPod, FlexPod, VSPEX, and Vblock

Open API for 3rd Party Integration

Consistent Management Across Pods

Scale up or down with ease
Emircom Introduction

Established in 1984, Emircom is one of the leading system integrators & Technology providers in the region.

- Owned by Al Nowais Investments
- Focus areas of business include: Telecommunications & Networking

Presence in UAE

- Abu Dhabi (Head Quarter)
- Dubai

Presence in KSA

- Riyadh
- Jeddah
- Dammam
Technology Focus

NGN Data Centers for SP & Enterprise
  Virtualization
  Public, Private & Hybrid Cloud Deployments

Transport Networks
  DWDM backbones & IP MPLS backbones: FM Operators

WiFi Solutions
  Indoor & Outdoor including Public WiFi

Collaboration Solutions
  Unified Communications & Telepresence

Security (Network / Physical)

SLA Based O&M Services

Professional Services (Consulting/ Audit)
Our Partners

Emircom: Cisco Gold Partner
- Advanced Data Center Architecture Specialization
- Advanced Borderless Network Architecture Specialization
- Advanced Collaboration Architecture Specialization
- Advanced Unified Communications Specialization
- Advanced Routing & Switching Specialization
- Advanced Security Specialization

Emircom: Team
- 300+ Team of qualified Technical support staff
  - 32 CCIE with domain expertise in SP, R&S, Voice, Security
  - 40 CCNP, CCDP, CCIP
Our Clients

- etisalat
- GAHS UAE
- مصرف النزاع
- نادي الأهلي
- DLC
- عين دبي
-Seeder
- Cellicium
- Thuraya
- ADNOC
- ADGAS
- ADCO
- Kirusa
- THALES
- NOOR Islamic Bank
- NOOR Islamic Affairs & Charitable
- ASPIRE
- Боруэй
- NOKIA
- ADP
- Samsung
- AS Nuqab
- Borouge
- Mubadala
- Emirati Hospital
- Samsung
- IBM
- WE Serve
- American Hospital
- Rotana Hotels
- Saudi Aramco
Market Observations
**Enterprise:** Increased demand For IT

**Enterprise:** Increased demand For Bandwidth

**IT Teams:** 70% time spent on Day to day O&M
30 % of time spent innovation

To address the Business/ IT growth we need
Data Centers That are Fluid
Capable of Dynamic Service Provisioning
On Demand Applications
On Demand Expansion Capabilities

**Enterprise:** Virtualization on Roadmap in near to medium term
Challenges

- Inflexible IT Ecosystem
- High Support Costs
- Multiple architectures hampering development and quality
- What to Virtualize
  - Infrastructure/Platform
  - How / Which applications to virtualize
- What components to use
- How to reduce the integration overheads
- How to reduce project status time (currently 8 weeks)
- How to manage the O&M while reducing operations cost
- What about skillset obsolescence
To Virtualize or Not To Virtualize?
That is no longer the question
The question is
How & To What Extent & How Soon
<table>
<thead>
<tr>
<th>Enterprise Perspective</th>
<th>Telco Perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Virtualized DC</strong></td>
<td><strong>Virtualized DC</strong></td>
</tr>
<tr>
<td>- Required for efficient IT operations &amp; to support rapid business growth</td>
<td>- Required for internal consumption</td>
</tr>
<tr>
<td>- Assemble own or Go for Hosted (Security)</td>
<td>- Required for Offering Hosted Virtualized DC solutions to Enterprise customers</td>
</tr>
<tr>
<td>- What components to Choose and how to integrate</td>
<td>- Should have ease of Service Fulfillment &amp; Service Assurance</td>
</tr>
<tr>
<td>- How to minimize the TCO</td>
<td>- Should support faster time to market</td>
</tr>
<tr>
<td>- What should be level of virtualization:</td>
<td>- Should have Secure Hosted Infrastructure</td>
</tr>
<tr>
<td>- Infrastructure</td>
<td>- Should have Fewer integration points</td>
</tr>
<tr>
<td>- Platform</td>
<td>- Should support service offerings; (IaaS, PaaS, SaaS, DaaS, ICTaaS, XaaS)</td>
</tr>
<tr>
<td>- What about workforce skillset obsolescence</td>
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</table>
VCE Solution
VBLOCK™ Infrastructure Packages

**VBLOCK™ 720: (10,000s)**
- Completely extensible high-end configuration to meet the most demanding IT needs
- Designed for large-scale / green field virtualization
- Cisco UCS, Nexus 1000v, MDS Switches, EMC Symmetrix V-Max Vmware VSpehere

**VBLOCK™ 320: (1000s)**
- Mid Sized Configuration
- Designed for consolidation / optimization initiatives covering
- Cisco UCS, Nexus 1000v, MDS, EMC Clarion CX-4 Vmware vSphere

**VBLOCK™ 200/100: (100s)**
- Brings benefits of private clouds to medium-sized businesses and small data centers
- Private Cloud in a Rack
- Test/development platform for Partners and customers
- Cisco UCS, Nexus 1000v, EMC Unified Storage, Vmware vSpehere
VCE Lifecycle System Assurance

- System optimization
- Update/validation
- Interoperability testing
- Regression testing
- Design for continuous interoperability
- Ongoing release matrix/code currency
VCE Differentiation

- Application Optimization
- Lifecycle System Assurance
- API Enabled, Converged Management
- Integrated Protection and Workload Mobility Solutions
- Pre-engineered, Pre-validated, Pre-tested
- Best-of-breed Technology

Customer Experience
- Fastest Time-to-Business
- Highest Performance
- Highest Availability
- Converged Management
- Lowest Risk
- Lowest TCO
VBLOCK™ Specialized System Solutions

Acceleration Suites (Specialized Systems)
Vblock Systems are optimized to deliver world-class performance and time-to-market for mission-critical workloads.

MESSAGING
- Microsoft Exchange Server 2010

ERP
- SAP
- Oracle

VIRTUAL DESKTOP
- VMware

COLLABORATION
- Microsoft SharePoint
- Cisco

DATABASE
- Microsoft SQL Server
- Oracle
VBLOCK™ Infrastructure Packages: Engineered, Tested & Validated to deliver revolutionary TCO and business agility at scale in most demanding use cases.

Integrated Pre-Sales, Services & Support

Single Contact point for maintenance service with unified approach to certifications and escalation

Unified customer engagement. Dedicated pre-sales, professional services
# VCE Services Portfolio

## PROFESSIONAL SERVICES

**ADVISORY**
Consultative expertise to accelerate transformation
- Roadmap and metrics
- Business case development
- Governance, operations, and facilities planning

**TECHNOLOGY**
Expertise to deploy, migrate, and implement Vblock; integration of solutions
- Rapid time-to-solution
- Accelerates return on investment
- Minimizes risk

**MANAGED**
Ongoing management and operation of infrastructure
- Applies operational best practices
- Fills skills gaps
- Knowledge transfer

## SUPPORT SERVICES

**LIFECYCLE ASSURANCE**
World-class seamless support and proactive lifecycle assurance
- Experts in all Vblock components and their interoperability
- State-of-the-art support and collaboration processes with Cisco, EMC, and VMware
- Accelerates time-to-resolution
- Proactive customer advocacy
Emircom Capability
Engagement Summary

**Enterprise:** To move to virtualized DC depending on requirement;
- Infrastructure Virtualization
- Platform Virtualization
- Build roadmap Software virtualization

**Service Providers:** To launch hosted services;
- IaaS
- PaaS
- SaaS
- ICTaaS
Assess & Design (3 to 4 weeks)

- Work with Clients IT Team to assess document the current compute model
- Prepare Client requirement Document with immediate mid term / long term goals
- Design a DC Solution that addresses clients goals
- Design the necessary security policies as per client requirement
- Initiate Ordering Process

Build & Deploy (6 to 8 weeks)

- Deploy the proposed validated solution
- Build and integrate the application modules based on customer requirement
- Build the necessary process framework needed during the operate phase
- Ensure quick time to service/ market thereby reducing TCO

Operate & Transfer (ongoing)

- Operate the deployed solution
- Manage SLA based 24x7 O&M
- Handle expansion requests
- Identify areas of optimization and application migration
Our Past Projects
## Past Projects

<table>
<thead>
<tr>
<th>Initiative Requirements</th>
<th>Business Benefit</th>
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</thead>
<tbody>
<tr>
<td>• Mission-critical operations</td>
<td>• More agile in responding to growth while increasing application performance and availability</td>
</tr>
<tr>
<td>• 100% uptime</td>
<td>• A 4:1 reduction in data center footprint and decreased power and cooling usage</td>
</tr>
<tr>
<td>• Time-to-business</td>
<td>• Improved total cost of ownership due to minimized requirements for implementation, administration, and support resources</td>
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### Government Agency

**Abu Dhabi, UAE**

**Solution**

**Vblock™ System 320**

- Main Site & DR Site
- Cisco UCS (2) Chassis with 11 UCS B200 servers
- VMware Vsphere
- Cisco MDS 9148 MLS For high performance SAN Connectivity
- EMC Storage: Clarion CX-4-480 Array (Total 42 TB)
- EMC Recover Point: (CRR) (Compression 4x to 15x BW Savings)

**Initiative Requirements**

- Scale quickly to support **1000s of users**
- Agile infrastructure to rapidly meet increased demand for services supporting ongoing/future government initiatives

**Business Benefit**

- More agile in responding to growth while increasing application performance and availability
- A 4:1 reduction in data center footprint and decreased power and cooling usage
- Improved total cost of ownership due to minimized requirements for implementation, administration, and support resources
### Past Projects

<table>
<thead>
<tr>
<th>Regional Service Provider</th>
<th>Initiative Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Mission-critical operations</td>
</tr>
<tr>
<td></td>
<td>• 100% uptime requirement</td>
</tr>
<tr>
<td></td>
<td>• Time-to-market</td>
</tr>
<tr>
<td></td>
<td>• Build a private cloud for internal consumption / development initiatives</td>
</tr>
<tr>
<td></td>
<td>• Build a public cloud for offering hosted services to customers</td>
</tr>
<tr>
<td></td>
<td>• Scalable Solution to support 10,000s users</td>
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</table>

<table>
<thead>
<tr>
<th>Solution</th>
<th>Business Benefit</th>
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</table>

**Vblock™ System 720**
- Main Data Center & DR Data Center in first phase
- Architecture being adapted across other Data Centers also
- FCS blades replaced with Cisco UCS blades
- Citrix migrated to Virtualized environment
- IPCC migration to UCS in progress
- VDI service in test phase for internal consumption as well as for market

**Significant reduction** in data center footprint and decreased power and cooling usage

**Able to rollout new hosted DC services to its customers**
- Now considering PaaS, SaaS and DaaS

**Accelerated new projects, such as product designs and production plans, by spinning up test environments in two hours compared to six weeks**

**SP IT team is able to meet long-term growth objectives while boosting performance and scalability while improving efficiency and simplifying administration**
VCE Customer Benefits

VCE CUSTOMER RESULTS

COMPUTE | STORAGE | NETWORK | VIRTUALIZATION

FASTER DEPLOYMENT 5X
LESS STAFF RESOURCE TIME 4X
BETTER AVAILABILITY 83X
LOWER COST 3X

CONVERGED OPERATIONS

Source: May 2012 report by IDC entitled "Converging the Datacenter Infrastructure: Why, How, So What"
“We have the right virtualization solutions for clients across Industry Sectors; SP as well as Enterprise. Our solutions are Industry tested and validated and can be deployed very quickly. We cover the entire range from Virtualization of DC Infrastructure to Platform to Application Virtualization.”
Thank you.
Government Agency (Abu Dhabi UAE)

**Build Project**

**Vblock 1000 x2 (Main Site DR Site)**

Cisco USC Servers (With Nexus 1000V Switches)

- Two UCS Chassis,
- 11 UCS B200 servers
  - High End Blades, 3.33 GHz, RAM 96 GB
  - Standard Blades, 2.93 GHz, RAM 48 GB
- VM Ware vSpehere
- Cisco MDS 9148 MLS
  - High Performance SAN Connectivity
- EMC Storage: Clarion CX4-480 Array
  - total of 42TB useable capacity will be configured for SAN connectivity and it can scale to a maximum of 480 drives.
  - Navisphere management suite
- EMC Recover Point/SE (CRR)
  - Compression 4x to 15x (BW savings)
Enhancements: TCO & Efficiency

Speed of delivery:
- 6-8 Weeks
- 2-3 Weeks
- 15 Minutes

IT Maintenance / IT Innovation:
- 70/30
- 60/40
- 40/60