Seeing Through the Static: Migrating to the Dynamic Data Center

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“…What we learned was that the ‘greenest’ and most cost-effective opportunities were in improving the efficiency of data centers that the clients already owned. By making substantive changes in how they manage their data center portfolio, organizations stand to make far and away the most significant gains in performance and cost savings”.

*Source McKinsey &Co*
What is your Data Center server efficiency?

Inefficient utilization

80% of server capacity goes unused at any given time

SOURCE: Gartner 2008
Have you considered a greener Data Centre?

<table>
<thead>
<tr>
<th>Inefficient processing</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Watts per device</th>
<th>Devices</th>
<th>kWh</th>
<th>Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple point solutions</td>
<td>175*</td>
<td>8</td>
<td>12264</td>
<td>$1,211.68 USD</td>
</tr>
<tr>
<td>Consolidated solution</td>
<td>175</td>
<td>2</td>
<td>3066</td>
<td>$ 302.92 USD</td>
</tr>
</tbody>
</table>
What is the cost of Virtual Sprawl?

Virtual machine density **5:1 in 2010**, rising to **25:1 by 2012**

Server support staff grows from 12.2% (2007) to 13.2% (2010) of IT staff
The Shift to the Dynamic Data Center

The static data center used to work.

Then came cloud computing…
the era of applications…
traffic diversification…

And now IT is buckling.
How the Static Data Center Falls Short

To start, it was simple…
How the Static Data Center Falls Short

To start, it was simple.

Then:

• More user types, services
How the Static Data Center Falls Short

To start, it was simple.

Then:
- More user types, services
- Application issues
How the Static Data Center Falls Short

To start, it was simple.

Then:
• More user types, services
• Application issues
• Security woes

What’s the answer?
Your Road to the Dynamic Data Center

Application fluency
On-demand scaling
Module integration
Automation and orchestration
Your Road to the Dynamic Data Center

Welcome to:
Dynamic Data Center
Next 3 Miles
What about Cloud?
Getting Users to the Right Cloud, Securely

Hacker

User B

User A

My App

My App
WHY CHANGE AND WHY NOW?
Why Change?

• Ensure Availability, Scalability and Recovery from site disaster
• Reduce Cost from Servers, Bandwidth, and Management by going Active-Active Data Center
• Improve Application Performance through application aware networking:
  • Reduce Application Response Time
  • Reduce Database Replication time
• Secure Application and Infrastructure
• Control Traffic Based on User Location, Device Type, User Classification
• Transition to cloud
HOW TO CHANGE?
Achieve 100% Utilization?
Virtualized the Data Center
Need more power? Just add Data Centers
Make Changes without System Downtime?
Just move the Environment
WHY F5?
Intelligent Traffic Management: Manage & Direct Traffic Based on User Location and Persistence

BIG-IP GTM with IP geolocation database

Roaming Singapore User with Persistent Session e.g. VDI
From DR to Active-Active Data Center
## Reduce Replication Time with WAN Optimization

<table>
<thead>
<tr>
<th>App/Protocol</th>
<th>Testing Status</th>
<th>Performance Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iele Streams</td>
<td>Complete</td>
<td>Up to 9x</td>
</tr>
<tr>
<td>Oracle Data Guard</td>
<td>Complete</td>
<td>Up to 1.3 – 2x</td>
</tr>
<tr>
<td>Oracle Golden Gate</td>
<td>Complete</td>
<td>Up to 24x</td>
</tr>
<tr>
<td>MSFT SQL Snapshot Replication</td>
<td>Complete</td>
<td>Up to 15x</td>
</tr>
<tr>
<td>NetApp SnapMirror</td>
<td>Complete</td>
<td>Up to 95x</td>
</tr>
<tr>
<td>NetApp FlexCache</td>
<td>Complete</td>
<td>Up to 60x</td>
</tr>
<tr>
<td>Dell EqualLogic Replication</td>
<td>Complete</td>
<td>Up to 74x</td>
</tr>
<tr>
<td>FTP (Large files)</td>
<td>Complete</td>
<td>Up to 240x</td>
</tr>
<tr>
<td>EMC SRDF –S, -A, -AC</td>
<td>Complete</td>
<td>Up to 3x for -S, 70x for -A</td>
</tr>
<tr>
<td>VMware Live vMotion</td>
<td>Complete</td>
<td>Up to 3-4x</td>
</tr>
</tbody>
</table>
Call to Action

Do we have the right **BC/DR strategy**?
- Can we **consolidate** our DCs and yet **scale up**?
- Do we have **active-active** DCs?
- Can we **optimize** our DB sync and replication times?

Do we have a solution to manage the **virtual sprawl**?

How do we **secure** our applications hosted in our DC and in Cloud?

How do we support Bring Your Own Device (**BYOD**)?

Do we have strategy to **transition to an IPv6 ready infrastructure**?