Linux on Z @ Aetna

March 25, 2010
Agenda

- Aetna Background

- POC Background

- POC
  - Our Stack
  - Details
  - Conclusions

- Today:
  - Where Are We?
  - What’s Next
Aetna

Taken from Aetna.com

- Aetna is one of the nation's leaders in health care, dental, pharmacy, group life, and disability insurance, and employee benefits.

- Membership:
  - 17+ million medical members
  - 14 million dental members
  - 10+ million pharmacy members
Mainframe n. An obsolete device still used by thousands of obsolete companies serving billions of obsolete customers and making huge obsolete profits for their obsolete shareholders. And this year's run twice as fast as last year's.

“The Devil's IT Dictionary (after Ambrose Bierce)”

The Year: 1966

Aetna is one of the first Commercial customers of the new IBM 360 Computer

The 1970’s

MVT ---- MVS ---- VM (CP/CMS)

The 1980’s

PROFS !!

The 1990’s

Sysplex ---- DB2 Data-Sharing

E-Mail

1998 Aetna Retires the Teddy Bear
Aetna Information Services

- Aetna has 2 Data Centers in CT
- They provide DBAR for each other
Aetna Mainframe Layout

Middletown

Windsor

Our Linux On Z POC was done here
Linux on Z POC Background

- Aetna started server consolidation early 2000’s
  - Solaris and AIX
  - Windows
- We did a Linux on Z POC in 2005
  - Suse (Bare Metal)
  - Could not cost justify at that time
  - Started Movement to Linux on P and/or VMware
POC

- POC starts in late 2007
  - RedHat --- z/VM (The Teddy Bear come out of retirement)
  - A cast of thousands…

- Drivers:
  - Green
    - Aetna MCC is closing in on KVA Limits
    - Available CPU’s on existing CEC’s

- POC ended in June, 2008
  - All major components tested
  - Volume tested databases
POC Goals

- **Goals:**
  - Handle Aetna Business Apps
  - Move to new hardware
  - Move between LPARS
  - Develop Operational Process

- **Results:**
  - ✓ Handle Aetna Business Apps
  - ✓ Move to new hardware
  - ✓ Move between LPARS
  - ✓ Develop operational process
Aetna Stack

Application Tier
- Lab Testing
- Lab Testing
- APMCAS

Middleware Tier
- Sandbox
- Sandbox
- TSM Back-up Server
- WAS App Server
- Oracle DB Server
- UDB DB Server
- UDB DB Server
- Comm Server

Monitoring Tier
- TIVOLI
- ITCAM
- TEC
- ITM

Security Tier
- Vintela

Guest O/S
- RHEL4
- RHEL5
- RHEL5
- RHEL5
- RHEL4
- RHEL5
- RHEL5
- RHEL5

O/S Tier
- zVM 5.3

Hardware Tier
- Z Series LPAR (AEVM)

SCSI DASD for applications

Z9 Sandbox
POC Details
Test Results - Application

- We tested 3 Databases
  1. 2 Oracle Databases
     - Oracle 10.2.03 running on RHEL 4.6
  2. UDB Database
     - UDB V8 on RHEL 5.1

- WAS / MQ
  1. Base product testing
  2. WAS 6.02.21 on RHEL 5.1
  3. WAS 6.1.013 on RHEL 5.1
  4. MQ 6.0.2.4 on RHEL 5.1
POC Details
Test Results - Infrastructure

- **Linux Guest Moves**
  1. From 1 LPAR to a second
  2. Collapse back to one VM

- **LPAR Moves**
  1. z9 to z10 … Seamless
  2. Then back again

- **Tivoli Storage Manager (TSM)**

- **HiperSockets**
POC Details
Test Results - Operations

- **Memory - CPU**
  1. Virtual vs Dedicated
  2. Dynamic allocation
     - 5.4 has helped, need Linux on Z adoption

- **Monitoring / Capacity**
  1. Mainframe & Midrange

- **Support**
  1. Linux is Linux
  2. VM / Linux / Storage support all work together
Conclusions

- It Works !!
- z10
  - Has increased the available resources for Linux on Z
- TCO
  - A relative thing (TCO vs TCA).
  - One of our major drivers today is “power”
- Migration
  - ‘Low Hanging Fruit’ – gone!! (consolidation, Linux on P, VMware)
  - Establish some internal applications to operationalize Linux on Z
Today

June 2008 => Today

- **Pressure**
  - Need Green relief quickly
    - Focus became *Delivery* not Preparation

- **The Bar Fight**
  - To prove environment took non critical app

- **Alligators** *(vs draining the swamp)*
  - Planview
  - Tivoli Product Suite
  - Communications Server
Today

**2 Prod LPARS**

Middletown

- LPAR 01
- LPAR 02
- LPAR 03
- LPAR 04
- LPAR 05
- LPAR 06
- LPAR 07
- LPAR 09

**Finally Our ‘Oracle LPAR’**

An Isolated Stress LPAR

**Two Test LPARS**

Windsor

- VW1T zVM
- VW1S zVM
- VW1P zVM
- VW2T zVM
- VW2P zVM
- LPAR 14
- LPAR 15
- LPAR 16

**2 Prod LPARS**

- VW1T zVM
- VW1S zVM
- VW1P zVM
- VW2T zVM
- VW2P zVM
- LPAR 17
- LPAR 18
- LPAR 19
- LPAR 20

**We still have Our original POC LPARS**

35 IFLs
156 gig memory
25,000+ mips

**Today Linux on Z @ Aetna**

We still have Our original POC LPARS
Today
What We Are Running Today

We have 2 applications, and a suite

- **Planview:**
  - Project Management Tool
  - Application Runs on Windows Servers
  - Database is Oracle on LoZ

- **Communications Server:**
  - Replacing Cisco CIPS for TN3270 Traffic
  - 80,000 sessions per day
  - Mission Critical
  - Run on 4 CECs 2 in each Datacenter
  - We have pushed the limits a little
    - Found a Knee at 3,500 session/guest
    - Need 20 Linux Guests
Today

What We Are Running Today

We have 2 applications, and a suite

- **Tivoli Service Management Center:**
  - Tivoli Application Discovery & Dependency (TADDM)
  - Tivoli Business Service Manager (TBSM)
  - Tivoli Common Reporting (TCR)
  - Netcool Omnibus, TEP, TEMS, ITM, etc
  - 27 guests built to date (potential over 80)
  - Some Challenges
What’s Next?

- **Platform Selection:**
  - IBM Calls it ‘Fit for Purpose’
  - Selectica (POC => used too much Memory)
  - Maturity
  - 2 more Business Apps (POC to Prod if OK)

- **Maturity:**
  - IPL’s and PORs
  - HA
  - Operational Readiness
  - Organizational Challenges
Questions?

Thank You !!

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