Don’s Diatribe IX

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Introduction

- This presentation tries to identify some of the most significant recent technology changes and elicit comments and discussion on them.
- As part of my job as a consultant I try to know a little bit about many things and a lot about a few things. This presentation represents an accumulation of the former.
- You may find some of these issues provocative, that’s intentional. 😊
General Slide Format

- Category
  - Component
    - Issue
      - comments, and backup material
    ❤ My “take” on the issue. (😊 or 😊 or 😞)
  - Your $0.02
Agenda

- Operating Systems
- Networks
- Security
- Platforms
- Storage
- Architecture
- Futures
- Wrap-up
Operating Systems

- Solaris
  - Sun moving to an OpenSource model
    - OpenSolaris
      - Available for x86
      - Ported to IFL+z/VM by Sine Nomine
      - “Legal” under IBM IFL licence as of November 2008?

😊 IBM not making a lot of noise? Will support be continued?
😊 Opportunity to consolidate to a single HW platform / standardize OS.
😊 Java is also available as OpenSource
Operating Systems

- **Windows**
  - “Longhorn” (Windows Vista/Server 2008) is here (and gone?)
    - Will need more horsepower than most enterprise desktops carry
    - Gartner [and others] are suggesting 2010 for full deployment
    - Hardware upgrades required
    - Linux Instead?
    - “Downgrade” options with Vista
    - Most people are waiting for Windows 7 (2009/2010)
    - Windows 7 upgrade path requires Vista (can’t go from XP)
    - XP support till 2010?

😊 *Do we really need a new version of Windows?*
😊 *I’m hoping for some “value” in Windows 7 that will convince me to upgrade (maybe a client-side VM, or enhanced multi-core support)*
😊 *Application support in Vista/7 concerns me; my XP migration was nightmare-ish.*
Networks

Wireless

- WiFi (IEEE 802.11) is everywhere (… well, almost)
  - Doesn’t seem to be a profit model (people won’t pay for a hotspot)
  - Wireless Toronto [http://www.wirelesstoronto.ca]
    - Non-profit volunteers to manage your set-up [$50.00/year]
    - Location pays for AP and broadband connection

メディコサービス

Ubiquitous WiFi still awaits a sustainable cost model

IEEE 802.11n

- Standard is due to be ratified by the WG in January 2010
- Pre-standard products being delivered in enterprise now.
- Must use 5GHz band to achieve advertised data rates

メディコサービス

Increase in 802.11 deployments will result in increased interference and lower data rates.

メディコサービス

802.11a deployments will be susceptible to interference
Networks

- Convergence
  - Triple [Quadruple] Play
    - Voice/Data/Media[/Mobile] all in one service
    - Requires re-think of “bandwidth provider” business
      - Un-bundle service from bandwidth [being done by some ILEC/CLEC in Europe]
    - New backbone: “Ethernet Everywhere” [drop OAM, ATM?]
    - The “other side” of the customer gateway will probably be IP.
    - Requires Over-Subscription? [currently 10x to 20x]

😊 Un-bundling should result in more competitive services

😊 Over-Subscription may result in reduced service at peak times [e.g. Telco's during disaster scenarios]

😊 Use of IP in the backbone means all the phones are essentially VOIP.

😊 North America is suffering from the desire of carriers to bundle content with services.
Security

- New Attack Vectors
  - What’s Out:
    - Viruses
  - What’s In:
    - Worms using zero-day exploits (e.g., “conficker”)
    - Social engineering
      - Load a USB stick (or digital picture frame) with “evil” code, leave it to be found.
    - Phishing
      - Click “here” to have your bank account emptied.
    - BOTNETS
      - You are so “pwned”.
      - “Flux” networks

- The bad guys will continue to win until the end-points [i.e. home computers] are secured [or “un-hackable”].
- “Safe” computing tends to be less “exciting” [i.e., no scripts, no Flash, no HTML e-mail, …]
- Current economic climate is encouraging the “shadow economy”.
Security

Privacy

- Social Networking Sites (e.g. Facebook)
  - Facebook “Beacon” allows cross-site tracking of on-line activity
  - Security settings are obscure and non-intuitive
  - Need to remember that these sites are trying to make a profit.
  - Worm distribution via social networking
  - Twitter worm (just discovered this week)

😊 Social Networking services use private information to generate revenue. “TANSTAAFL”.

😡 Do you really want John Doe from high school demanding to be your “friend”?
Security

- **Firewalls**
  - Everyone should have a FW [especially broadband users]
    - Why don’t MB’s come with a basic FW?
      - Built-in NIC could easily be protected by default
      - Configure via BIOS [hard to hack]
      - Already have built-in RAID
      - Simple, eliminate many exploits
  - Some new DSL/Cable modems incorporate Router/Firewall
    - Often shipped in bridge mode
  - Hard [impossible] to find Router/Firewall with dial-up support
    - Many people still don’t have broadband access

객관적으로, 이는 사용자 관점에서 안전을 유지하기 위한 기본적인 시스템을 갖춘 보안 시스템을 제공하지 않는다는 점을 강조한다. 이는 네트워크 보안의 중요성을 높이 고려한다.

- Until consumer connections are “stealthed” creating botnets and “owning” PC’s is far too easy.
- Attack vector is shifting to use social engineering to activate exploits.
- Does this nullify the usefulness of the firewall?
Firewalls (Continued)

- Endian open source firewall
  - SOHO/SMB with “Enterprise class” requirements
    - offered by endian [http://www.endian.com/en/community/about]
    - Linux-based, up to 4 “zones”
    - Use “old” PC (Pentium 166, 96MB)
    - Available as VMware image (could run a PC as 1 VM firewall/1 VM client), or install CD
    - Provide traffic shaping, IDS (Snort)

عواطف: 😞 Requires a bit more knowledge than the general home user.
 booths: Free! (as in beer)
🙂 Great for SOHO/SMB that needs a bit more control.
Security

- Windows Patching
  - Patch Tuesday
    - Zero Day exploits

😊 MS has adopted out-of-band patching (APAR?) for critical/zero-day problems.
Platforms

- zSeries emulators are dead?
  - IBM licensing issues with PSI
  - FLEX-ES systems are expiring
  - IBM won’t licence z/OS on Hercules
  - IBM doesn’t seem to want to make their internal zPDT tool available.

❗ Small development shops are going to have to move to a shared system provided by IBM.
Platforms

- Internet
  - Web 2.0
    - Hard to write secure applications
      - Running significant code on client side
  - Enterprise 2.0
    - Collaboration is the “new black”
      - IM, Wikki, WebLog
      - Large organizations (CA, IBM) embracing collaboration
      - Knowledge Management vs. Knowledge Sharing
    - “Millennials” will demand these tools
      - Equivalent to “grey beards” having a desk phone

😊 Are we back at the “Fat Client” stage again?.
😊 Need to re-think deployment of “social” tools for business use.
😊 With some thought, internal applications can be secured & managed.
Platforms

- Smart Phones
  - Apple, RIM, Google, Palm all have products
    - Too expensive for consumer?
    - Application lockdown (end of “generative internet” – Communications of the ACM)
    - Security
  - ☹️ *I think the internet service is too slow and too expensive to be useful*
  - 😊 *LTE may provide sufficient bandwidth, but the price may still be too high.*
  - 😞 *The PDA functions are hard to expand (e.g., sync with Linux systems?)*
  - ☀️ *Competition *should* bring the price down.*
Platforms

- PHP Considered Harmful?
  - Much “Social Networking” software uses PHP
    - Lots of vulnerabilities.
    - Easy to write “bad code”.
    - Scanning for vulnerable systems is rampant.

🤔 Would you write banking apps with ISPF dialogues and CLIST/Rexx? (i.e. HTTP+PHP+Perl)
Platforms

- Everything is a computer
  - Software failures can impact daily life
    - Tech writer ended up with “bricked” DVD/BluRay player
    - Microcode error in Seagate HD

😊 **Vision of ’70s was to replace discrete logic with processors and software. We’re there and it’s not as pretty as it seemed at the time.**

😢 **Will get worse as devices network. How about malware that spreads from an infected movie through your DVD player and “bricks” you new $5,000 HD television?**
Platforms

Internet

- Net Neutrality
  - Carriers are looking to differentiate services based on content
    - Rogers inserting their own stuff into HTML stream
    - Bell “throttling” traffic

🤔 Why stop at HTML? Insert advertising into VOIP calls as well.
🤔 Will carriers decide to throttle all encrypted traffic?
🤔 ISP association lost in bid to have CRTC rule against Bell.
🤔 “Silo” content to particular carrier?
Platforms

- Internet
  - IPV6
    - IPV4 addresses will run out around 2011 (800 days!) [Vint Cerf]
    - Is being rolled out within carriers
    - Gateways may need upgrades
    - Everyone gets a “static” IP?

😊 At least the LAN should be able to stay on IPV4.
😊 Static IP which makes running local services easier? (home web server)
😊 Static IP makes privacy harder? (everyone knows who you are)
😊 Static IP make authentication possible? (similar to caller-ID)
Platforms

- Virtualization
  - Support for VM included in Linux
  - CPU vendors adding support for VM within the chip.
  - VMWare offers a free version of the run-time engine
    - This enables entire systems to be distributed as VMWare images
  - Microsoft including VM in Server 2008

😊 This is another step on the road to OS/Hardware decoupling.
😊 Virtualization may be the “easy” way to get performance out of multi-core CPUs.
😢 New “hammer” to fix everything
Platforms

- Processor Architectures
  - Multi-core CPUs
    - What can we fill that empty silicon with?
      - Driven by reduction in size of transistors (Moore’s Law)
      - Molecular transistor demonstrated in lab – going to get more interesting soon.
    - Software licensing
    - Application issues (multi-processing is hard)
    - Reached consumer/desktop machines with latest Intel and AMD chips.
    - 1,000’s of cores per chip not unrealistic in the near future

😊 Multiple cores will continue to proliferate (I’ve just upgrade to a quad-core desktop) although they won’t necessarily be directly accessible to the OS (e.g., IBM Cell)

wać We will have a whole new set of desktop application “bugs” related to poor implementation of multi-threaded applications

أخلاق Need a language with Tier-1 support for multi-threading – Ada [PL/1 😄]?

לא נוח Focus on CMT might reduce single core development? Amdahl’s Law!
Storage

- Virtualization/Consolidation
  - SANs are becoming standard in datacentres
    - FC/FICON in large enterprise
    - iSCSI becoming prevalent in SMB (single network technology)

  "Decoupling of compute/storage is a good thing. Actually have a Data-centre instead of a Server-centre."

- NAS/SAN Appliances now available for consumer
  - E.g. D-Link DNS-323: RAID-1, 1000Base-T, FTP/CIFS
    - Add 2 SATA disks to make 1TB NAS at $0.75/GB
  - Netgear ??? RAID-0/1/2/3/4/5/6, Dual 1000Base-T, NAS & iSCSI SAN
    - 2TB RAID-5 version at $0.75/GB
    - 4TB RAID-5 version at $0.50/GB

  "Consumer networked storage will help to drive down costs of enterprise-class."
Architecture

- “Cloud Computing”
  - SAAS by another name
  - Ultimate outsourcing
  - Concerns regarding security, integrity, availability
  - All the issues with outsourcing with a much smaller “stick” on the consumer side.

😆 All the issues with outsourcing with a much smaller “stick” on the consumer side.
😊 Insourced “cloud” may be the driver of infrastructure architecture.
Architecture

- Services Oriented Architecture
  - Application SOA
    - The “A” is for Architecture
      - Hot new thing – very difficult to implement – vendors have product but you need an architecture (the “A” in SOA).
  - Infrastructure
    - Thinking of infrastructure as a set of services shouldn’t be new
      - Need to develop patterns (like the SOA for applications) to help people understand the value.

😊 *The complexity of computing solutions today requires an abstraction layer. Architecture, (Application, Data, and Infrastructure) should provide that abstraction.*

😊 *Virtualization technology is slowly making this possible – Architecture is a conceptual virtualization of the IT systems.*

😊 *Cloud requires SOA infrastructure.*
Futures

- Current economic “crisis”
  - All malware attack measures are increasing.
  - Underground economy is thriving (either prices or volume is up).
  - Unemployment is driving people to seek “alternative” means of making money.

😊 The “bad guys” are doing quite well.
Futures

- Changing workforce/user community
  - User community that is adept with using tools but does not necessarily understand how they work.
    - Circumventing corporate browsing controls
    - Connecting to outside services using personal devices (i.e. smartphone)
  - We need to educate the users about technology risks?
    - Vendors won’t do it (it cuts into their sales)
    - Parents can’t do it (don’t know the technology well enough)
    - Schools?

😊 Maybe we need an licence to surf the internet super-highway.
Wrap-up

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