Don’s Diatribe III

IT issues that **still** keep me awake at night

Don Melton
Vatic Technologies Limited
Disclaimers

- All opinions expressed in this presentation are those of the presenter and are not necessarily those of Vatic Technologies.
- All of the issues, discussions, and opinions in this presentation have been drawn from publicly available information.
- All trademarks are the respective property of the trademark owners.
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
- Application Development
- Architecture
- Wrap-up
Operating Systems

- Windows
  - Still waiting for “Longhorn” (Windows Vista)
    - WinFS won’t be in Vista, however, a new GUI will.
    - Latest dates are 1Q2007 for consumer and Q42006 for enterprise versions
      - I can’t see the enterprise people jumping on immediately (always wait for the “dot” or “SP” release)
      - Will need more horsepower than most enterprise desktops carry
  
  😞 Do we really need a new version of Windows?
Operating Systems

- Windows
  - Microsoft’s “Genuine Advantage”
    - Couldn’t patch WinXP SP2 without Activating it
      - so much for the 30 day trial 😊
    - A number of features in Vista (e.g. 3D windows) are enabled only through “Genuine Advantage”

😊 Is this “overloading” the anti-piracy feature?
Operating Systems

- Windows
  - Windows XP can be dual-booted on a Mac
    - Tools distributed by Apple
    - No support … “If it breaks you get to keep both parts.”
  😊 This is another step on the road to true hardware abstraction.
Operating Systems

- Linux
  - Can Linux distros avoid being “contaminated” by non-OS issues?
    - Novell now “owns” (distributes) SuSE Linux
      - Novell has incorporated a lot of its Novell-only (e.g., directory) concepts into the SLES platform.
    - Oracle is considering buying a Linux distribution of their own (maybe Novell/SuSE, maybe RedHat)
  - Linux distributions are already becoming bloated and there is a chance that (in the search for product differentiation) they will become more so.
Networks

- VOIP
  - VOIP needs to be deliverable over wireless networks to penetrate businesses.
    - Some new devices that use Cell service outside the office and auto-switch to the local PBX VoIP over 802.11 inside
    - Skype-ready phones are now available.
  - Consumer business case is in “free” long distance
    - Really just a de-duplication of service
      - still need a wire into your home (from Telco or cable company) and you’ll still want your cell phone.
    - QOS is not there yet
      - Latency/packet drops can kill a voice line.
  - Availability
    - My DSL line drops (and reconnects) for about 5 seconds without warning about once every 500 hours (99.97%) TCP/IP manages to survive, will a VOIP 911 call?

😊 VOIP will only succeed if it can provide equal service to the existing cellular network.
Networks

- Gigabit Ethernet
  - Included on many new motherboards
  - Switches/NICs are cheap enough (C$75 for 8 ports, C$30 for a NIC)
  - No killer app (yet)
    - maybe home entertainment – transfer a 20GB movie to a portable device to watch on the train while you’re having your morning coffee.

😊 Gig Ethernet will be the standard for building wiring and net new LANs
Networks

- Wireless (IEEE 802.11)
  - WiFi is everywhere (… well, almost)
    - Doesn’t seem to be a profit model (people won’t pay for a hotspot)
    - Toronto Hydro will roll out a WiFi network in downtown Toronto this summer (June)
      - Free for first 6 months then they’ll figure out how to charge for it
      - I might pay for a ubiquitous WiFi where I won’t pay for a “hotspot”
  - Ubiquitous WiFi still awaits a sustainable cost model – we’ll know by 1Q2007.
Networks

- WiMAX (IEEE 802.16)
  - Could be the answer to Ubiquitous broad band but:
    - Telco's lobbying US to prevent communities from providing free (i.e. taxpayer provided) Internet Access
    - Still need special equipment in customer premises (not the same as 802.11)

😊 **WiMAX could solve the “last mile” issue, but only if the CPE is affordable to the end user.**
Networks

- Wireless PANs
  - “Personal Area Networks” – either Bluetooth or UWB.
    - Bluetooth is “slow”, but fairly ubiquitous.
    - UWB is fast (300+Mbps) but new and not standardized yet

😊 **UWB will be used for connecting multimedia systems and Bluetooth will continue to be the “replacement” for infrared.**
Security

- Windows Patching
  - Patch Tuesday
    - MS patches continue to have “side effects”
    - Zero Day exploits
      - There have been at least two serious exploits in the last year where 3rd party patches were created while waiting for Microsoft
      - An un-patched Windows machine lasts about 15 minutes on the internet. (see http://isc.sans.org/survivalhistory.php)

😊 MS needs to adopt a two-tiered patch approach (can you spell A-P-A-R)
Security

- SPAM
  - Black(Block)lists
    - SPAM issues used to about the cost of keeping it away from your business (i.e. lost productivity) now additional cost of losing business due to blocking.
    - Collateral damage
    - Vigilantism?
  - UCE will continue to plague us – user education is the only way to get rid of it.
RFID

When all you have is a hammer …

- Storing information for US passports?
  - information theft issues
  - DOS issues
- UPS using barcodes instead
  - Symbol Technology reader, Bluetooth, WinCE, 802.11
  - No business process changes required

RFID will get used in the personal information space until the first big security scandal.
Security

Privacy

- "You have no privacy--so get used to it!" [Scott McNealy]
  - Many people seem uninterested/unaware of privacy issues
  - E.g. gCal, Google Calendar (http://www.google.com/calendar)
    - Supports searching of “public” calendars – “Toronto” turned up 200+ calendars many of which were individuals with personal appointments including names and addresses.
- Focus on Sarbanes Oxley, etc has deflected Canadian business from reviewing PIPEDA compliance.

😊 PIPEDA will be largely ignored until the Canadian Government begins enforcement (along with penalties) or there is a public scandal. E.g., all of a financial institution’s customers experience identity theft.
Platforms

- Browsers
  - The Browser Wars - Part II
    - IE/Firefox
    - I want a browser that works across all my platforms
      - Linux, Solaris, Windows (98/NT4/NT5), Windows Mobile
  - Whither Open Standards?
    - What happened to HTML guidelines? The W3C is open standards body for a reason!
      - FEMA designed Katrina help site that only worked with IE6 – it was only updated after complaints
      - US Copyright office doing same thing (IE & Netscape) driven by use of shrink-wrap (Siebel in this case)
  

😊 The browser has become an integral part of the application (not just a presentation layer) and the internet is moving to a two-tiered client/server architecture with a “fat browser” client.
Platforms

- Processor Architectures
  - Itanium Irrelevant?
    - Challenge for Itanium was the need to recompile to extract performance
    - Applications now largely developed in application “containers” (WAS, JBOSS) – the container can be recompiled for performance
    - “Shrink wrap” applications (e.g. SAP) can also be delivered transparently

😊 **The choice of processor is irrelevant as long as the applications are being written in Java or developed by a 3rd party.**
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
    - OS issues (multi-processing is hard)
  - Multiple cores will continue to proliferate although they won't necessarily be directly accessible to the OS (e.g., IBM Cell)
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

😊 *This is another step on the road to OS/Hardware separation.*
Storage

- Provisioning
  - “DAD” [1]
    - “Disk Array Designer”
    - HP Labs, DoCoMo Labs, Pennsylvania State University
    - A technique for automating the selection of all the necessary parameters to create a storage element in an array.

😊 Storage management tools will continue to provide an abstraction layer between managing the storage and the physical devices that realize it.

1. Quickly finding near-optimal storage designs; ACM Transactions on Computer Systems (TOCS); Volume 23, Issue 4 (November 2005)
Storage

- **Performance**
  - “ALIS” [1]
    - Automatic Locality-Improving Storage
    - IBM Almaden Research Center, UC Berkley
    - A system that physically reorganizes the disks “on the fly” to take advantage of sequential pre-fetch.

  😊 *Concepts like ALIS will be able to move from research to product much more quickly because they are deployed within the storage subsystem (they are transparent to the OS)*

---

1. The automatic improvement of locality in storage systems; ACM Transactions on Computer Systems (TOCS); Volume 23, Issue 4 (November 2005)
Application Development

- Flavour of the month SDLC
  - Agile methods
    - Credo
      - code is the documentation
      - requirements are determined at coding time
      - build incrementally and continuously
    - difficult to incorporate non functional (e.g. architectural) requirements
  - Model Driven Development
    - Credo
      - model is the documentation
      - requirements tested against the model
      - build a high level model and top-down refine it
    - don’t have good tools to do this yet

😊 The battle will continue for some time, but it’s not “one size fits all”.

There is a “happy medium” somewhere.
Architecture

- Internet
  - ACM Turing Lecture (Vint Cerf, Bob Kahn)
    - Is the Internet the right solution?
      - Guys who invented it are concerned that it’s not appropriate anymore.
      - Need to identify information sources, not computers (IP doesn’t really work)
      - DNS is poor substitute – Handle System (http://www.handle.net/)
      - http://beansidhe.isc-net.upenn.edu:8080/ramgen/seas/Turing.rm
  - InterPlanet
    - What happens when you change the rules?
      - Internet architecture doesn’t work for high-latency networks.
- Government regulation
  - Who “owns” the internet? Should it be owned? ICANN?
- Internet 2
  - A collection of good (but relatively innocuous) changes to the internet.
    - Can’t do anything architecturally major to the internet – it’s been co-opted by business who will balk at major changes.
    - E.g. IPV6

😊 Government regulation and the demands of business will drive the internet to split into business and “everything else”.
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.
Wrap-up