School Infrastructure Optimisation

Darren Elsby

National Sales Manager

Computelec Pty Ltd

Brisbane, Tuesday 20 March 2007

Microsoft

A bit about me.

- Darren Elsby (National Sales Manager – Computelec)
  - 10 years experience at Computelec
  - In that time I have served a variety of roles -:
    - Technician
    - Field Engineer
    - Senior Engineer (MCP, MCSE, ASE – Hp ProCurve)
    - Solutions Integration Manager
    - National Sales Manager
  - Responsible for Computelec delivering 5500 tablet and notebook computers into K-12 schools across Australia as well as other projects
  - Currently manage a staff of approx 25 engineering and sales staff

Microsoft

A bit about Computelec

➢ Computelec has been in business for over 20+ years

➢ Microsoft Gold Partner

➢ Microsoft Large Account Reseller (LAR)

➢ First worldwide to put together the pieces of a viable 1:1 programme into schools. This model has been adopted across the world

➢ In recognition of this effort Computelec was awarded a Smithsonian Institute award

➢ Toshiba Australia's leading education partner

➢ HP Business Partner

➢ Supplier of Hardware, Software and Support Services

➢ Professional Development for Staff

➢ Offices in Melbourne, Sydney, Perth and soon Brisbane

➢ Visit us at our stand

Microsoft
GOLD CERTIFIED
Partner

Secure Well Managed Infrastructure (SWMI 06)

- Microsoft – Computelec Joint Initiative
- 50 Schools across Australia where selected to participate by Microsoft
- Computelec worked with 50% of these schools
- Onsite visit by a Computelec senior systems engineer to perform a review of the school's IT infrastructure
- A questionnaire was also completed onsite with the school
- Status of some of the following was asked in the review –:
  - Platform
  - Single Sign on
  - Software Updates
  - Remote Access
  - 802.1x
  - What Learning Management System?
- A final written report with suggestions was then sent to the school and to Microsoft

5 Key findings from SWMI 06

1. The schools visited were at a variety of stages in their IT development. (How do school's define their current IT state to further develop?)

2. Many schools had a strong Microsoft Platform including Windows Server 2000/2003/R2,MS Exchange

3. Backup measures were mixed and varied (products, tape, disk to disk) no backup was also a big issue!

4. Security was again mixed and varied (none to wired and wireless 802.1x, deployment of SSL)

5. AV, Malware and Spam were generally handled well although again mixed and varied results

Enable these 5 features today

1. Enable Volume Shadow Copy

2. Utilize the Windows CA and IAS to deploy secure 802.1x

3. Use the MBSA tool free from Microsoft to review the security on your Microsoft Infrastructure (Microsoft Baseline Security Analyzer)

4. Turn on the IMF (Intelligent Message Filter) in Exchange 2003 SP2

5. Use Microsoft File Server Resource Manager for file blocking i/e MP3's etc

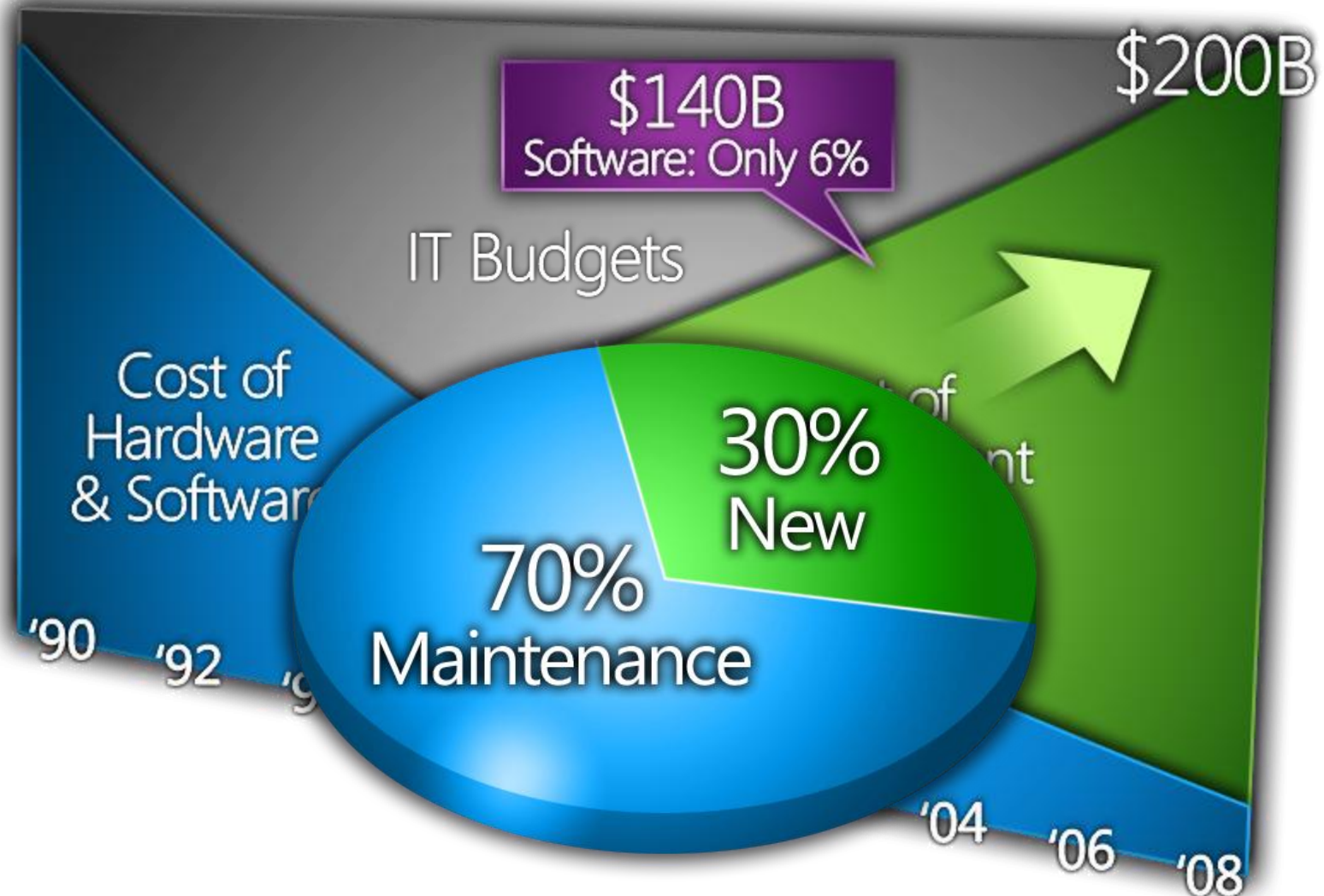# Solving The Challenge:
Infrastructure Optimisation

Why is it important?

Security

Costs

Productivity

Infrastructure Optimising – Why so important?

- Firstly identify the business need
  - The Business of Teaching and Learning
  - The Business of Supporting the School Administration

- Get the best out of your existing investment in IT Infrastructure

- Increase performance, uptime

- Create the "Can Do" IT environment

IT Complexity And Cost

The Infrastructure Optimisation Model

Basic	Standardised	Rationalised	Dynamic

People

Process

Technology

Microsoft

Technology View of Model

Identity & Access Management

Desktop Lifecycle

Security, Networking & Monitoring

Data Protection & Recovery

Secure, Manageable Messaging

| Basic | Standardized | Rationalized | Dynamic |

Microsoft

Stage 1 "Putting out the Bushfires" - Basic

➢ You may find your IT environment hard to control and expensive to manage

➢ Manual & localized processes

➢ Minimal central control

➢ Nonexistent or unenforced IT policies and standards regarding -:

  ➢ Security

  ➢ Backup

  ➢ Image Management

  ➢ Deployment

  ➢ Compliance

  ➢ Other common IT Practices

Scenario - Story

➢ One School Asked Computelec to provide an IT review

➢ The review found the following

  ➢ No formal procurement process aligned to the needs of the School (IT were free agents)

  ➢ No Inventory or asset management

  ➢ Backup process involved a technician coming in on the weekend to backup the network to DVD yes one disc at a time!

  ➢ School IT Staff decommissioned the main Exchange server without backing up or migrating the data (which included all the principals appointments for the year ahead!)

  ➢ Group Policy was not being utilized causing desktops labs to be far from a standard SOE

  ➢ Equipment was mainly built in house with no manufacturers warranty

  ➢ Teaching staff were frustrated because school software was not being installed for their classes

  ➢ IT staff were clearly out of their league and confidence in IT at this school was shattered!

Steps to leave the basic stage behind

➢ Implement Active Directory as your primary directory service for Authentication and Authorization (Enables a Single Sign on Environment)

http://www.microsoft.com/windowsserver2003/default.mspx

➢ Automate Software Update Management with Windows Software Update Services (WSUS - free tool)

http://www.microsoft.com/windowsserversystem/updateservices/default.mspx

➢ Build a school SOE for use with desktop and notebook computers (Vista Specific)

http://technet.microsoft.com/en-us/windowsvista/aa905061.aspx

➢ Create and an image based deployment service (Vista Specific)

http://technet.microsoft.com/en-us/windowsvista/aa905116.aspx

➢ Implement DHCP: network and access services

http://technet2.microsoft.com/windowsserver/en/technologies/dhcp.mspx

➢ Centrally manage AV software (Vendor Specific)

http://www.microsoft.com/forefront/default.mspx

➢ Implement a backup- restore solution for critical servers and Data

http://support.microsoft.com/kb/326216

Microsoft

Product Summary – Basic Stage Review

➢ Windows 2003 R2
  ➢ Active Directory
  ➢ Group Policy
  ➢ DHCP
  ➢ DNS
➢ Microsoft Forefront
➢ MS Exchange
➢ Windows Server Update Services
➢ Windows XP/Windows Vista

➢ **Consider tier 1 server and desktops and managed network equipment

Stage 2 – "We're gaining control" - Standardized

- ➤ Your IT staff is in a position to efficiently access tools and information they need
- ➤ Standardized infrastructure introduces controls through the use of standards and policies to manage desktops and servers
- ➤ Controls on how machines are introduced to the network (watch the ferals!)
- ➤ The use of Active Directory Services to manage resources, security policies, and access control
- ➤ Take control with automated systems management and automated identity and access management
- ➤ Service-level Agreements are linked to business objectives
- ➤ Your School can benefit from clearly defined and enforced images, heightened security, and reliable best practices

Scenario – Real Story

Senior College runs a notebook programme for students and staff. Whilst the school does not mandate that students buy a specific machine it recommends that they should look at the school SOE to keep hardware and software support quick and painless. Some students opt to bring their own laptop computers to schools and this poses some severe potential problems. The school also had a recent incident with electronic bullying.

➢ After consulting with Computelec, Senior College -:

  ➢ Deployed wireless 802.1x to manage access to the network

  ➢ All notebooks where required to be apart of the domain with machine accounts so that group policy could be applied to these machines.

This allowed -:

➢ Centralized AV updates, patch management and application security/deployment where then able to also be applied to bring these machines in line with the SOE as far as possible.

Steps to leave the standardized stage behind

➢ Implement a directory based tool to manage configurations and security on desktops

http://technet2.microsoft.com/windowsserver/en/technologies/featured/gp/default.mspx

➢ Implement compatibility and cert for desktop applications

http://technet.microsoft.com/en-us/windowsvista/aa905102.aspx

➢ Deploy a Virtual test environment

http://www.microsoft.com/windows/products/winfamily/virtualpc/default.mspx

http://www.microsoft.com/windowsserversystem/virtualserver/default.mspx

➢ Implement zero touch deployments utilizing SMS 2003

http://www.microsoft.com/smserver/default.mspx

➢ Monitor infrastructure and health of you deployments via MOM 2005 and Management packs

http://www.microsoft.com/mom/default.mspx

➢ Fully leverage Windows Server 2003 to deploy a secure 802.1x

http://www.microsoft.com/technet/prodtechnol/winxppro/deploy/ed80211.mspx

➢ Deploy Data Protection Manager (+DPM Management pack for MOM)

➢ Consider SAN/NAS for data storage and backup

Product Summary – Standardized Stage Review

- Windows 2003 R2
  - Active Directory
  - Group Policy
  - DHCP
  - DNS
  - Certificate Services
  - IAS (Radius)
- Application Compatibility ToolKit
- MS Exchange
- MS SQL
- Virtual PC & Virtual Server
- Microsoft Forefront
- Windows Server Update Services
- Microsoft Operations Manager (MOM)
- Systems Management Server 2003 (SMS)
- Data Protection Manager
- Windows XP/Windows Vista

Microsoft®
Systems Management
Server 2003

Microsoft®
Operations Manager 2005

Microsoft®
SQL Server 2005

Microsoft®
Forefront™

Microsoft®
Virtual Server 2005

Microsoft®
Exchange Server 2007
Enterprise Edition

Microsoft

Stage 3 – "We enable Business" - Rationalized

- IT is becoming a strategic asset
- Users look to IT as a valued partner to enable new business initiatives
- The Rationalized infrastructure is where the costs involved in managing desktops and servers are at their lowest
- Security is very proactive, and responding to threats and challenges is rapid and controlled
- By moving to a Dynamic IT infrastructure, you can benefit from self-assessing and continuous improvement, access information from anywhere on the Internet with greater ease and security, and ensure compliance and high availability through self-provisioning and quarantine-capable systems

One Benefit: Desktop Cost Savings

	Basic	Standardized	Rationalized
Hardware / Software	$1,406	$1,366	$1,258
Operations	$734	16% → $617	36% → $394
Administration	$428	$373	$366
Total Direct Costs	$2,568	8% → $2,356	14% → $2,017
End User Productivity & Downtime	$2,952	$2,450	$1,306
Total TCO	$5,520	13% → $4,806	31% → $3,323

Gartner, DECM tool $US

Computelec NBP Deployment

- Computelec deploys approx 5500 machine over a 3 month period (Dec – Feb)

- On average we would deal with 150 different school images during this period

- Each school has their particular needs for delivery (asset tracking, removal of packaging, bios settings etc)

- Computelec has had to evolve it's systems and processes to ensure an efficient utilization of resources to maintain this effort.

- Speed, efficiency and cost reduction are everything

What we do-:

- Imaging from BOOT with the operator having a choice from a menu of image type

- Bar code scanning (we scan everything)

- Quality check a sample and enforce a image sign off procedure

Scenario - Story

- School XYZ's IT department is enabling business
- The school processes school fees via a secure online website
- New students entering the school via admissions have accounts automatically created for network access and email and are associated into the correct security groups, data, internet and print quotas are also assigned.
- Staff have access to email and files anywhere they might travel that has internet access
- Parents can view assignments, grades and homework that may be due
- Mobility solutions including content filtering can be provided anywhere a student has a notebook computer
- Downtime is rare
- Schools IT department has a committed 4 hour turnaround time too support issues
- A new VOIP system was introduced between campuses to save substantial phone costs

Microsoft

Steps to leave the Rationalized stage behind

➢ Implement configuration control policies across systems using group policy

http://technet2.microsoft.com/windowsserver/en/technologies/featured/gp/default.mspx

➢ Implement Zero touch provisioning

http://www.microsoft.com/technet/desktopdeployment/ztp/default.mspx

➢ Setup automated application compatibility testing

http://www.microsoft.com/technet/prodtechnol/winxppro/deploy/appcom/apcintro.mspx

➢ Optimize you firewall infrastructure

http://www.microsoft.com/technet/solutionaccelerators/wssra/raguide/FirewallServices/default.mspx

➢ Secure your wireless network

(see previous link)

➢ Utilize IPSec to isolate servers and domains using group policy

http://www.microsoft.com/technet/security/guidance/architectureanddesign/ipsec/default.mspx

➢ Monitor critical desktops with MOM

http://www.microsoft.com/technet/prodtechnol/mom/mom2005/Library/faf19f47-facd-4467-9510-e7c84c671572.mspx?mfr=true

Steps to leave the Rationalized stage behind

➢ Automate patch management for servers

    http://www.microsoft.com/technet/updatemanagement/default.mspx

➢ Enable quarantine services for VPN users

    http://www.microsoft.com/technet/security/prodtech/windowsserver2003/quarantineservices/default.mspx

➢ Data protection and data recovery strategy for desktops

    http://www.microsoft.com/technet/prodtechnol/winxppro/support/dataprot.mspx

***Utilize Managed Switches to deliver network security via VLAN & 802.1x to the port

Product Summary – Rationalized Stage Review

- Windows 2003 R2
  - Active Directory
  - Group Policy
  - DHCP
  - DNS
  - Certificate Services
  - IAS (Radius)
- Application Compatibility Toolkit
- Zero touch provisioning
- Virtual PC & Virtual Server
- Microsoft Forefront
- Windows Server Update Services
- Microsoft Operations Manager (MOM)
- Systems Management Server 2003 (SMS)

- Data Protection Manager
- Windows XP/Windows Vista
- MS Office
- ISA Server 2006
- MS SQL
- MS SharePoint
- MS Exchange

Microsoft

# Stage 4 – " We're a strategic Asset" - Dynamic

- ➢ **The Dynamic infrastructure is one where IT systems are self-managing and dynamic**
- ➢ The Infrastructure Optimization Model defines a core number of capabilities in alignment with the Dynamic infrastructure:
  - ➢ Proactive component configuration control
  - ➢ User self-service for common helpdesk requests
  - ➢ Automated application compatibility testing
  - ➢ Optimized firewall and security practices, including network quarantine capabilities
  - ➢ Secure wireless network access
  - ➢ Secured third-party remote access to network and line-of-business applications
  - ➢ Automated desktop health monitoring
  - ➢ Automated software update management for servers
  - ➢ Data protection and recovery strategy for critical desktops

Product and Discussion

- Windows 2003 R2
  - Active Directory
  - Group Policy
  - DHCP
  - DNS
  - Certificate Services
  - IAS (Radius)
- Application Compatibility Toolkit
- Zero touch provisioning
- Virtual PC & Virtual Server
- Microsoft Forefront
- Windows Server Update Services
- Microsoft Operations Manager (MOM)
- Systems Management Server 2003 (SMS)

- Data Protection Manager
- Windows XP/Windows Vista
- MS Office
- ISA Server 2006
- SQL
- SharePoint

Microsoft

How To Take The Journey
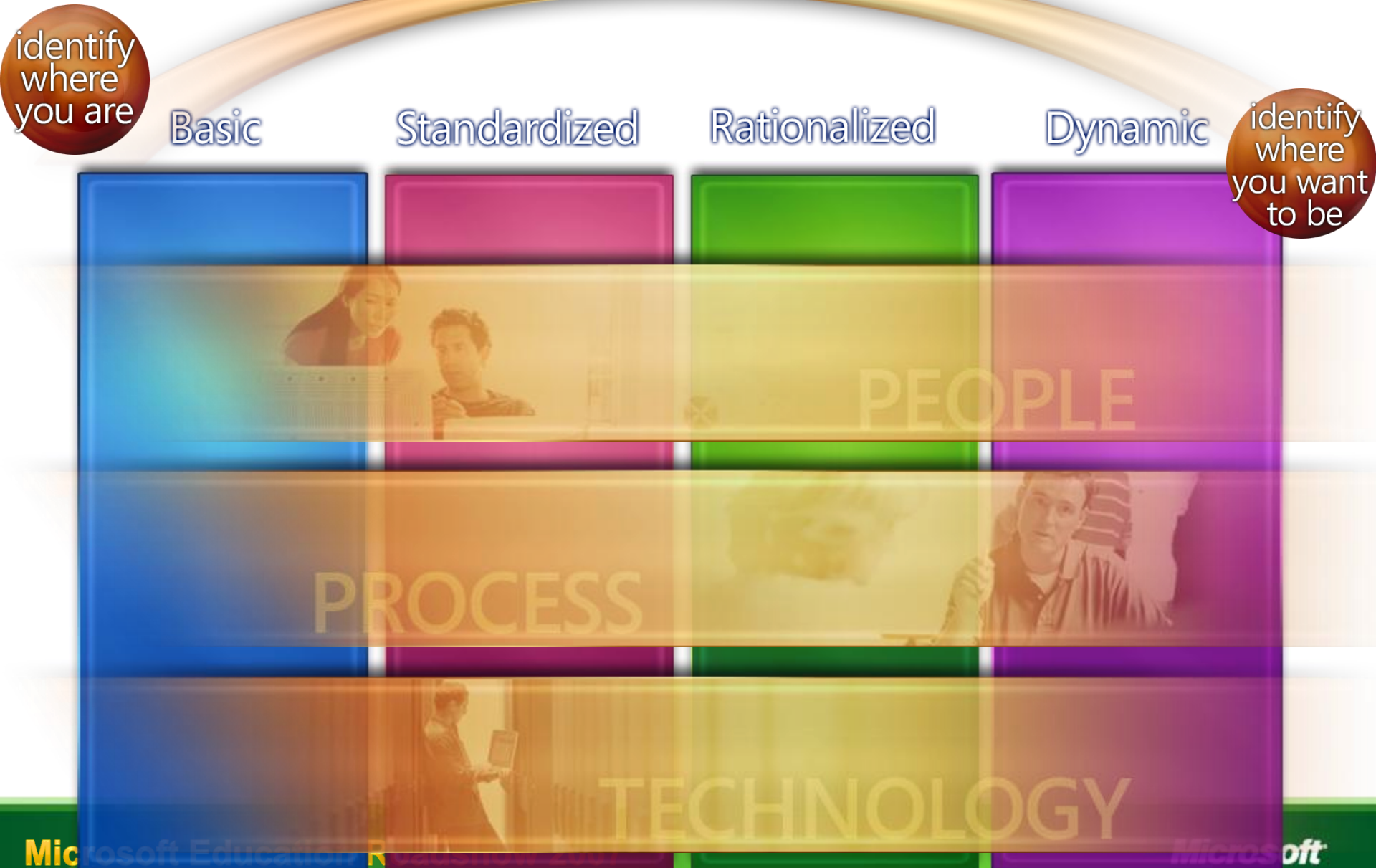
identify where you are

Basic **Standardized** **Rationalized** **Dynamic**

identify where you want to be

PEOPLE

PROCESS

TECHNOLOGY

Infrastructure Optimisation test

Local Website

➢ http://www.microsoft.com/australia/education/edureadiness/checklist.mspx

USA Website

➢ http://www.microsoft.com/technet/infrastructure/iom_assessment.mspx

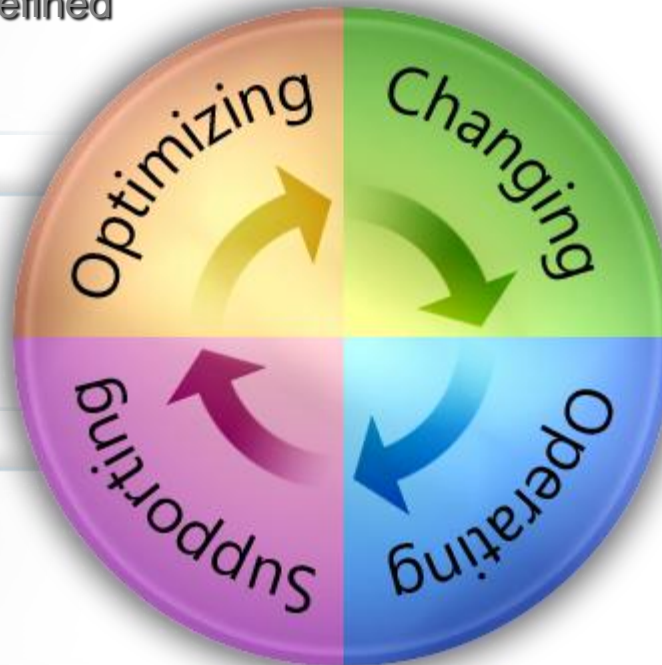# Enhancing Processes
Microsoft Operations Framework (MOF) and ITIL

Microsoft through MOF defined many ITIL principles

MOF is a foundation to comply with SarbOx, HIPPA, ISO, and other best practice compliance

MOF makes Microsoft ITIL-Compliant

MOF and ITIL provide common IT Service Management taxonomy

MOF applies ITIL to Microsoft products
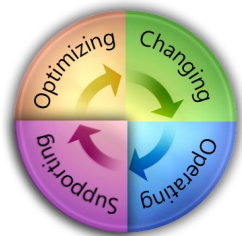
MOF makes ITIL actionable on the Microsoft Platform
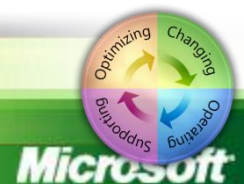
Microsoft

Microsoft Operations Framework/ITIL in IOM

Basic
- Reactive
- Ad hoc
- Problem-Driven
- "Avoiding Downtime"

Standardized
- Reactive
- Stable IT
- Request Driven
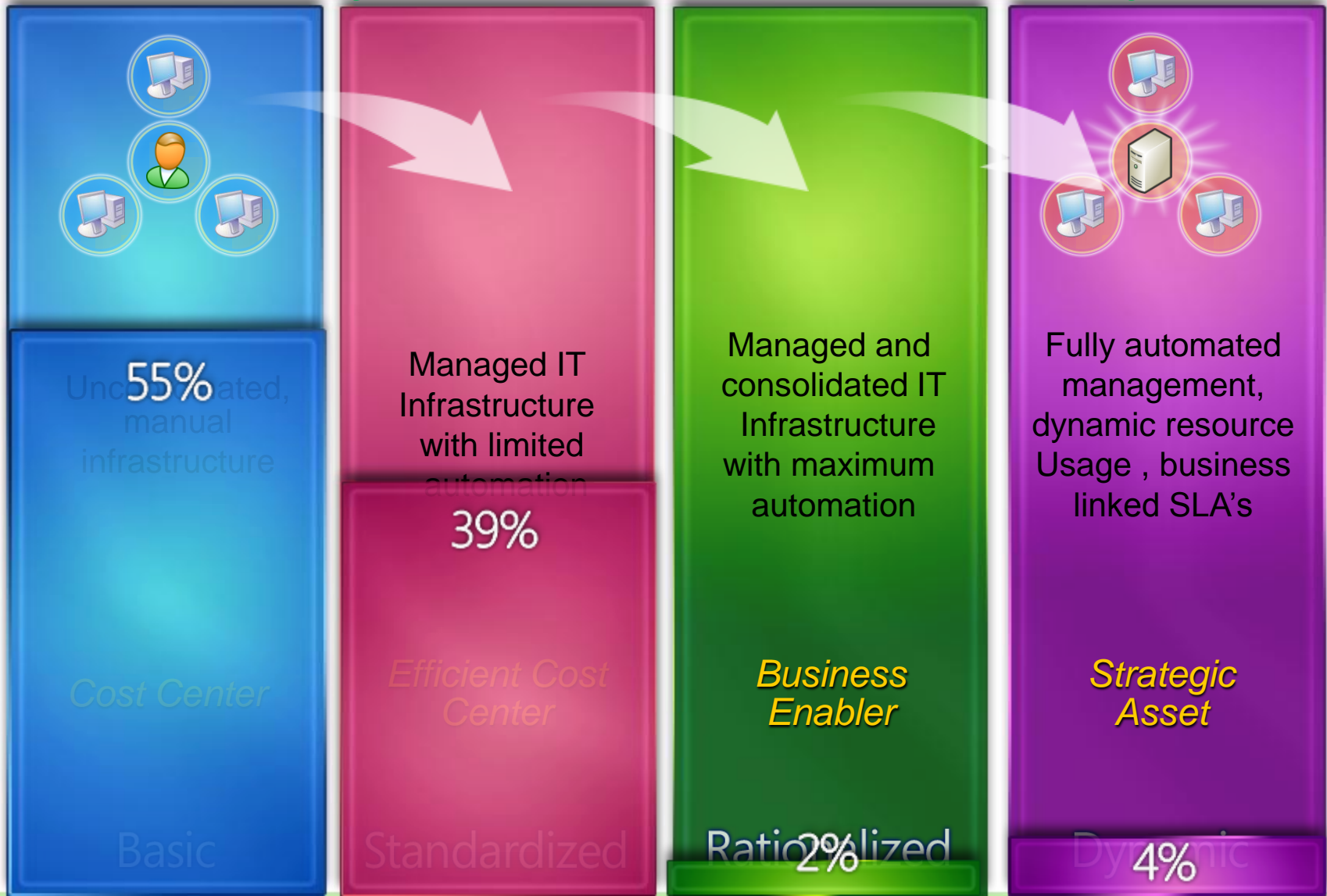- Change Management and Planning
- "Keeping It Running"

Rationalized
- Proactive
- Accountable
- Increased Monitoring
- Formal Change Management
- SLA's
- Improvement
- Predictability
- "Quality Driven"

Dynamic
- Proactive
- Optimizing Costs and Quality
- Agile
- Self Assessing and Continuous Improvement
- "Taking The Lead"

Where is your school at today?

55%	Managed IT Infrastructure with limited automation 39%	Managed and consolidated IT Infrastructure with maximum automation	Fully automated management, dynamic resource Usage , business linked SLA's
Uncoordinated, manual infrastructure			
Cost Center	Efficient Cost Center	Business Enabler	Strategic Asset
Basic	Standardized	Rationalized 2%	Dynamic 4%

Hale School - ITIL

➢ **ITIL – IT Service Management at Hale School, Perth**

The Hale School currently has 6 ICT support staff including Help Desk operator to manage and support approximately 1500 School users and the same name number of School / Student computers.

We are extremely happy with our implementation of IT Service Management as:

IT support staff efficiencies have improved, support staff are less stressed and user satisfaction is high.

We hope in time to implement more of the ITIL framework in the near future.

Peter Dyer

Manager of IS

You don't know what you don't know!

➢ Ongoing Training – Visit Excom

➢ Consider ITIL Training for your staff

➢ Review the Microsoft Operations Framework

http://www.microsoft.com/technet/solutionaccelerators/cits/mo/mof/default.mspx

➢ Also Windows Server System reference Architecture

http://www.microsoft.com/technet/solutionaccelerators/wssra/raguide/default.mspx

Microsoft

Thankyou

Darren Elsby

National Sales Manager

Computelec Pty Ltd

darren@computelec.com.au

Visit the Microsoft Stand for the "School Infrastructure Checklist" used during SWMI.

Credits

Microsoft Partner Notes

Matt Hester – Webcast (Microsoft)