Developing a platform of organisational security reporting using existing tool sets

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ITSM Reporting Services

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Or

The importance of validating your systems and assumptions!

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Introduction

- We all need to be alert to the possibility of violation of our IT security
  - Viruses
  - Unauthorised access to sensitive data
  - Malicious or unintentional deletion or corruption of data
  - Physical access control
- We implement various security features
  - Anti virus
  - Access control (physical and logical)
  - Software patching
  - Backup and DR
  - etc. etc.
- Typically these are strictly controlled within the individual process but is that enough?

Our experience has shown that it is not!

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The client

- Enterprise Business Services (EBS)
  - Part of Singapore Power
  - Responsible for providing IT support services to SP_Ausnet (SPA) and Jemena (JEM) power companies
  - 250 staff
- Seeking to improve overall IT service management
- Recently announced that they will be no more as of July 2014
  - Moving back into SPA and JEM

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What we set out to do

- Develop some reporting capability around various aspects of IT security, specifically:
  - Patching compliance;
  - Virus detection;
  - Identity management;
  - Perimeter security; and
  - Network device OS;
- Simplify the management of these areas and thus improve overall organisational security
- Report using high level dashboards for management down to low level operational reports
  - all using the same data source
- Gain some benefits from the various sources of data available
  - Connect different data sources for improved intelligence

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Why

- The current state was unknown
- A desire for continual improvement
  - through a reporting feedback mechanism
- Improve and simplify management and operational control
- Reduce the manual reporting effort at all levels
- Through these efforts, reduce the likelihood of a security breach

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A holistic view

- Like ALL IT Service Management operations security needs a more holistic view of the world
- Link data from different sources for validation and gained intelligence
  - SAP and AD – Expired accounts
  - AD and EPO - anti virus
  - Etc.
- Provide information to more people for added insights
- Track changes to see improvements (or degradation)

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How

- Utilise existing tools and data sources, i.e. no additional operational tools
- Integrate data into a single security reporting database
  - Extract data daily
  - Automate
  - Collate weekly
  - Report monthly
- Self service reporting where possible

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The process

- We had a brief spec, unfortunately with very little detail
- Good handle on the data sources from the SME
- Reports went through several review iterations and changed quite a lot
- We spent a lot of time at the end of the project revalidating all the data as the changes that occurred during the reviews broke several of the early assumptions

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The reporting architecture

- Use the existing reporting framework
  - SQL Server 2008 R2
  - Captell for data extraction and loading
  - SQL Server Reporting Services (SSRS) for reporting
  - Quad core windows 2008 R2 server 8GB ram
  - 50GB database
- Utilise data from the tool sets used to manage the various security and other processes

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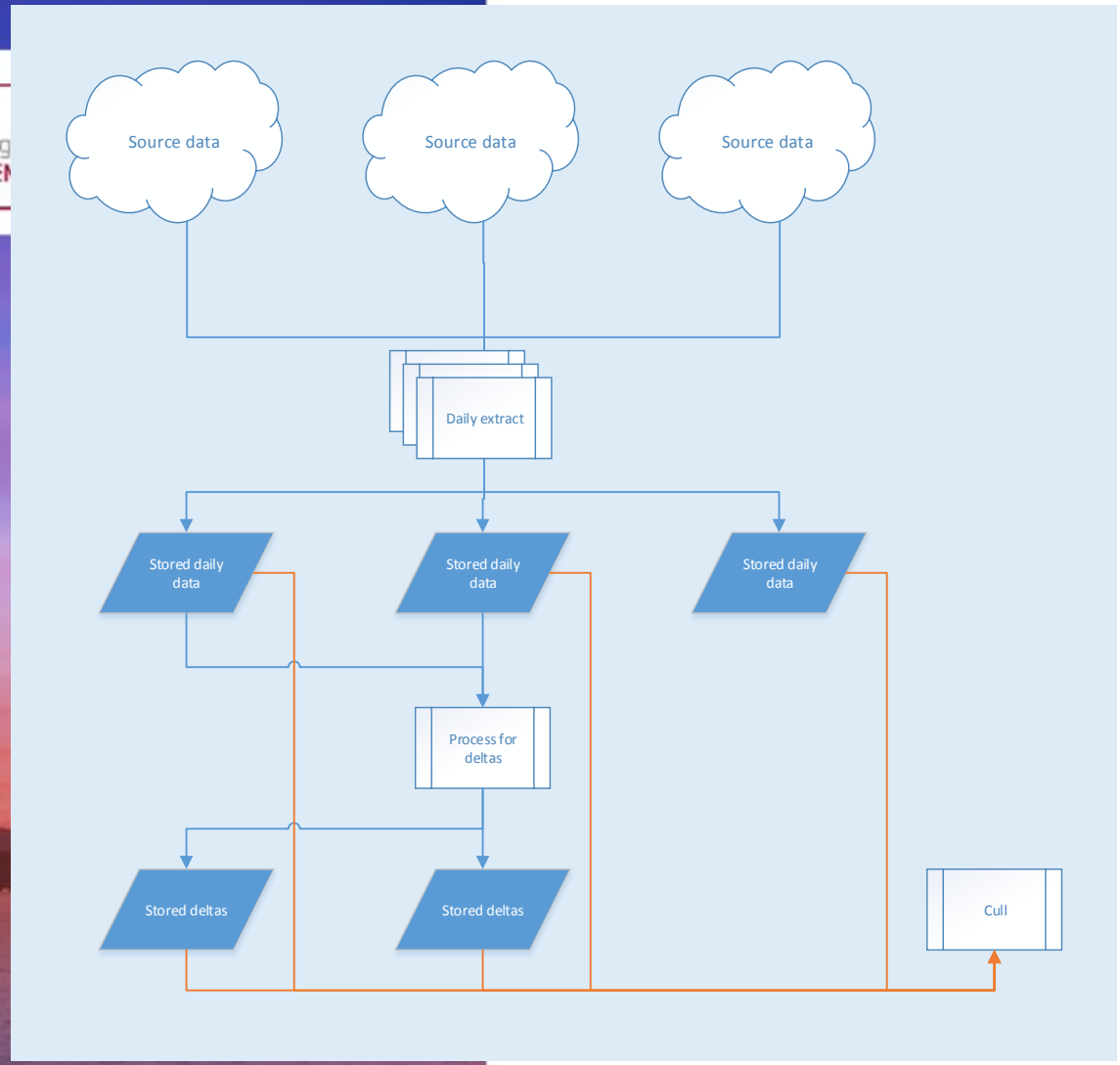
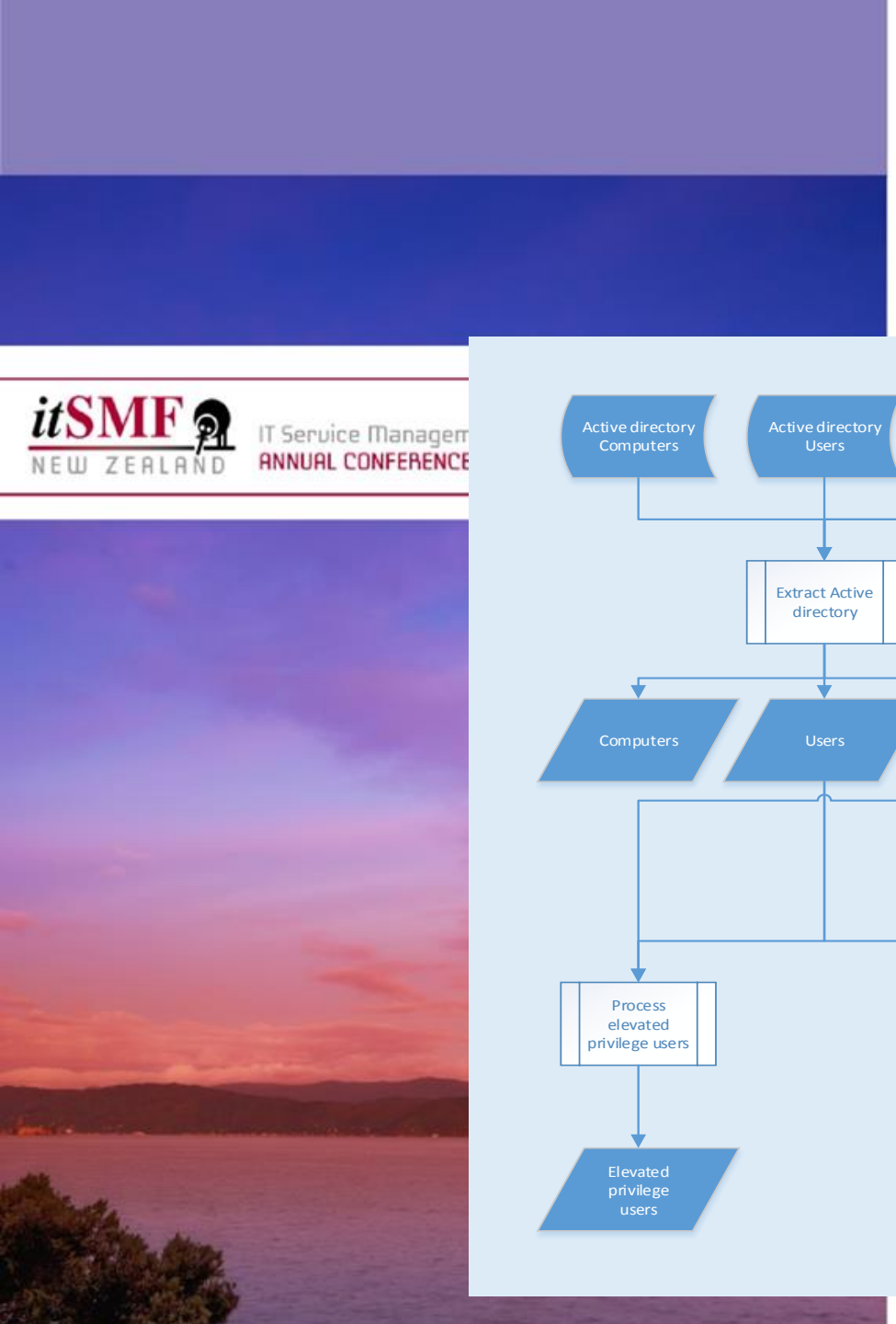
Basic reporting principals

- Independent
  - Don’t rely on individual tools, processes or services, cross validate
- Centralised
  - Allows joining of different data sources for validation and added intelligence
- Timely
  - Allows timely response to reported information
- Consistent
  - All reports at all levels telling the same story, on the same page
- Accurate
  - All reports from the same place in the same format for improved management at all levels
- Cost effective
  - Reuse reporting infrastructure, tools, techniques and data

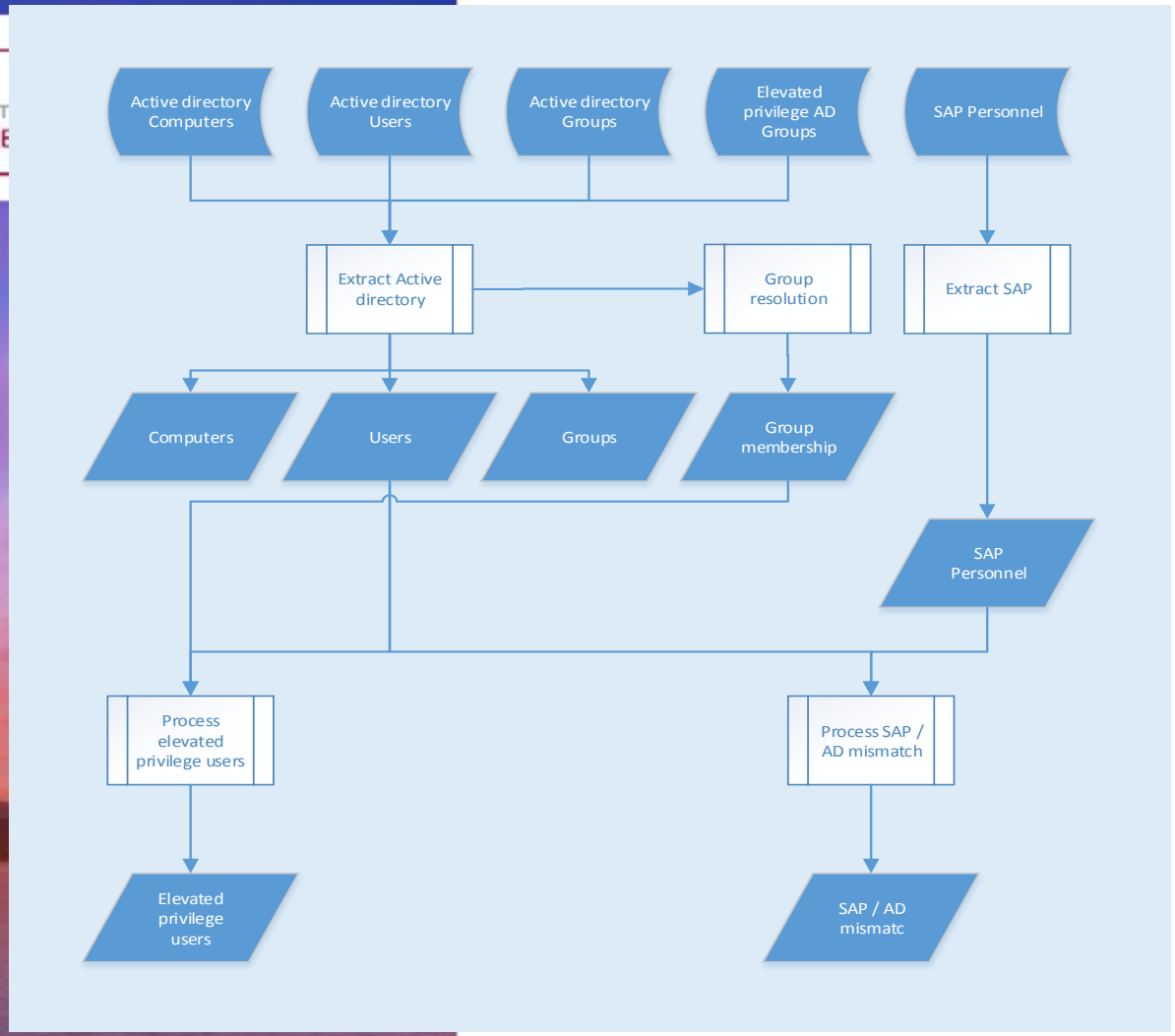
General data management processing



- Extract process for each source
- Store data daily
  - Allows for early detection of data extract failures
- Calculate differences and store
  - Most tool sets only retain current values
  - To track improvement (or degradation) need to see differences
- Cull older unwanted data



Typical data source processing Active directory / SAP data processing



- Extract from AD and SAP
  - Computers
  - Users
  - Groups
  - Group membership
    - Needs separate process to resolve groups
  - SAP Personnel
- Determine AD users no longer in SAP
- Determine individual users with elevated privileges

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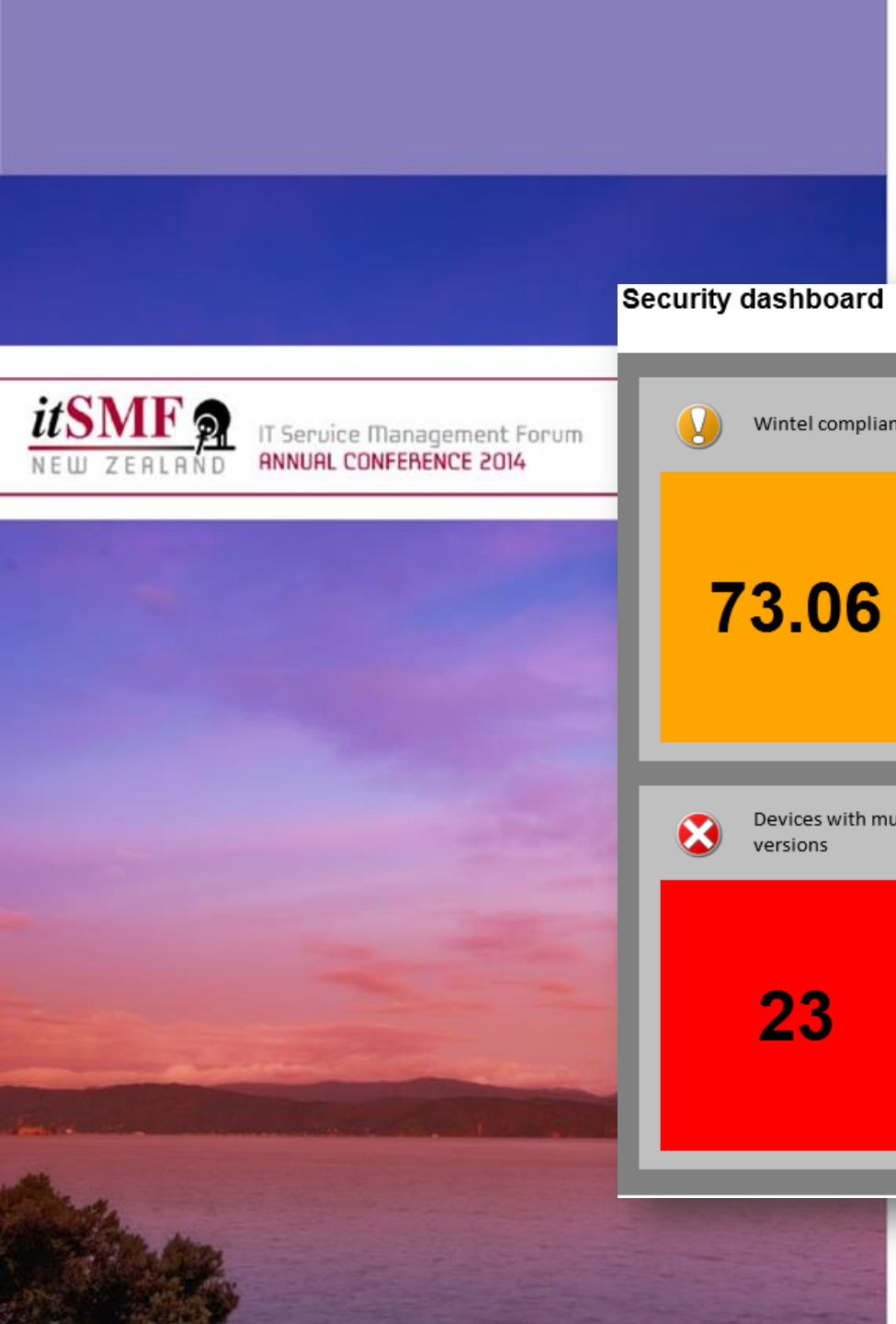
3 levels of reporting

Level 1: The security dashboard



Click to jump to the Level 2 report

Security dashboard

Wintel compliance (%)	Virus signature compliance (%)	Accounts not requirin… Password
73.06	79.53	18
Patching compliance	Virus detection	Identity management
Devices with multiple OS versions	Firewall rules used in past 365 days	SAP - AD mismatches
23	76	158
Network device OS	Perimiter security	

Related reports

- 300 - Identity Management Dashboard
- 301 - Identity Management Account Details
- 302 - AD accounts without matching SAP record
- 303 - AD accounts with elevated privileges
- 304 - AD EPO device match mismatch
- 305 - Patching Dashboard
- 306 - Security Dashboard
- 307 - Patching nonCompliant Devices
- 308 - Devices missing a patch
- 309 - Virus Threat Dashboard
- 310 - Virus Threats at a device
- 311 - Network Device OS Dashboard
- 312 - Network Devices
- 313 - Perimiter Security
- 314 - Missing patches
- 315 - Security reports
- 316 - Firewall Rule Usage
- 317 - Members of an AD Group
- 318 - AD accounts
- [illegible] - AppSense Usage Data
- 399 - Security Dashboard test

Click to jump to other reports

Level 2: Identity management

Click to jump to the Level 3 report

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Level 3:

- In this case the level 3 report identified the AD user records that don't have a matching SAP record or a SAP record that is no longer current

AD Name	AD Given Name	AD Sur Name	Display Name	Distinguished Name	Mail	Manager

Level 2: Virus threat dashboard

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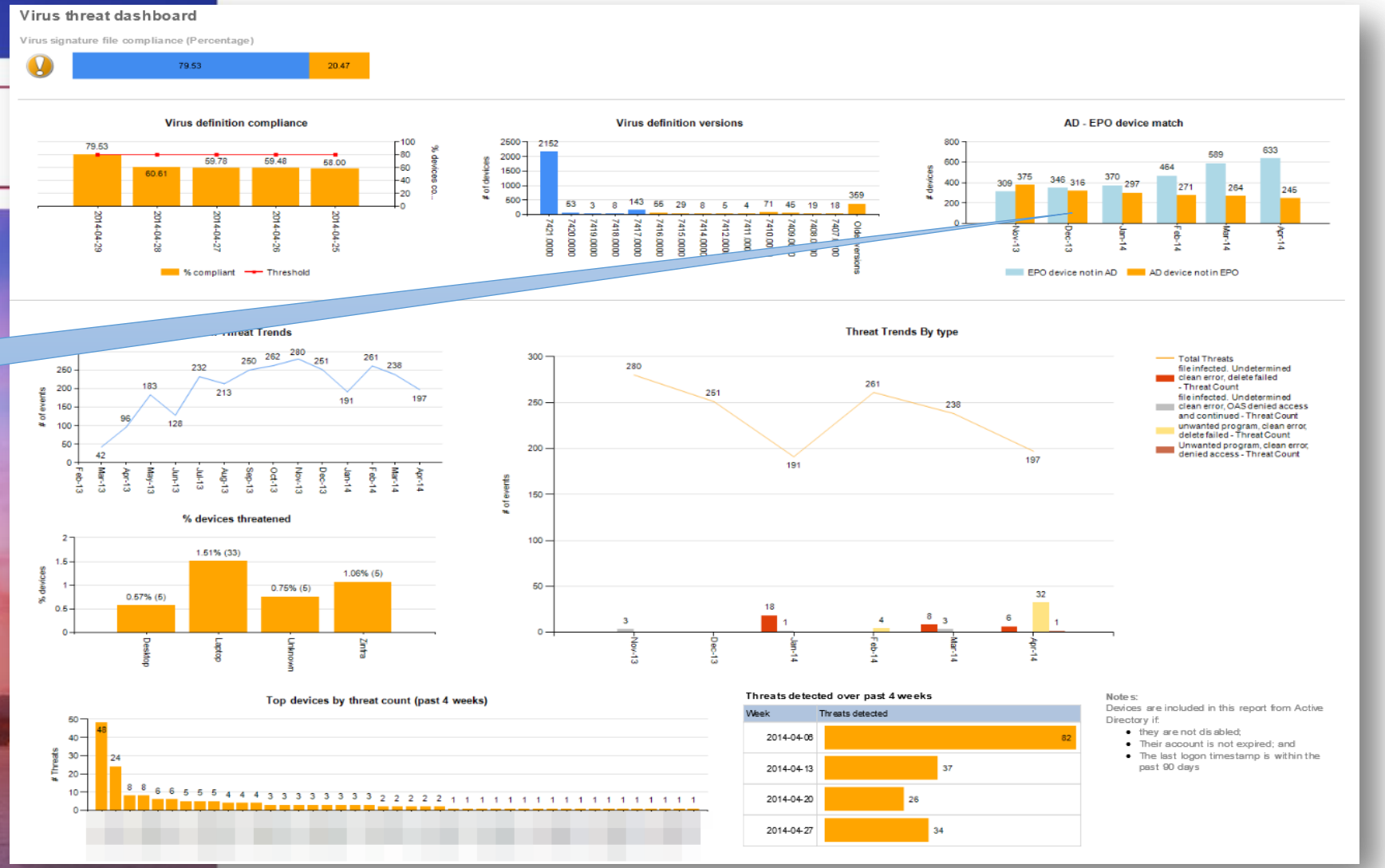
Click to jump to the Level 3 report



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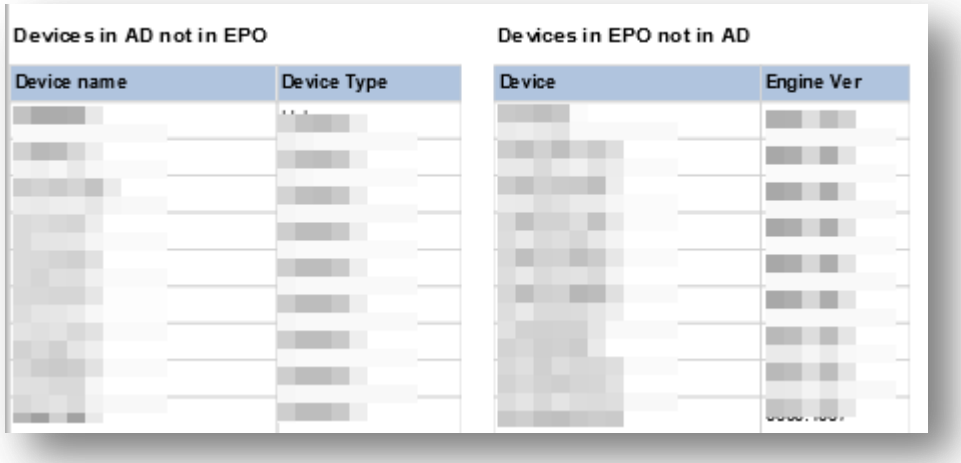
Level 3

- This level 3 report identifies AD devices not in EPO and visa-versa



Devices in AD not in EPO

Device name	Device Type

Devices in EPO not in AD

Device	Engine Ver

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Difficulties

- There are no processes which included the reports
  - While they recognised the need for reporting they didn't have a process that utilised the reported output
  - Its important that any report is part of an overall process. Otherwise why produce the report in the first place?
- Some data sources were impossible to process
  - Encrypted, proprietary data

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What we learnt about the report development process

- Its very difficult to develop a reporting system without a clear picture of what the reports are to be used for
  - Without a process to utilise the reports it's uncertain what should be reported on
- Validation, Validation, Validation
  - After every set of review changes we revalidated, this always resulted in more changes as earlier assumptions changed
- The iterative approach works ok but it wastes time and money
  - Some changes were simply moving back to an earlier version

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What the client learnt

- The benefits of cross validation
  - Antivirus claimed 100% of devices were up to date with anti virus definition files
  - However they didn't have all devices in their database
  - Cross data validation identified the missing devices (AD – EPO)

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Outcomes

- Improvement to several aspects of security
  - Patching compliance
    - More responsive to new patch releases
  - Clean up of Active Directory
    - Ensuring user accounts have active SAP record
    - Rationalisation of AD groups
  - Anti virus protection
    - Inclusion of all devices into EPO management
- A recognition that improvements can be made
- A recognition of the importance of cross data validation

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Take home message

- Develop processes for security management that include a report feedback loop
- Establish cross process reporting from all the sources of security related data such that they feed the processes
- Validate your results

Questions?

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