Intrusion Management

and

ISMS

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Agenda

- Intrusion Management
  - *What is it?*
  - *Any problems?*
  - *Why all the interest?*
  - *Some IT advice*
- ISMS
  - *What do the standards say?*
  - *A case study*
- Observations/Conclusions

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Intrusion Management

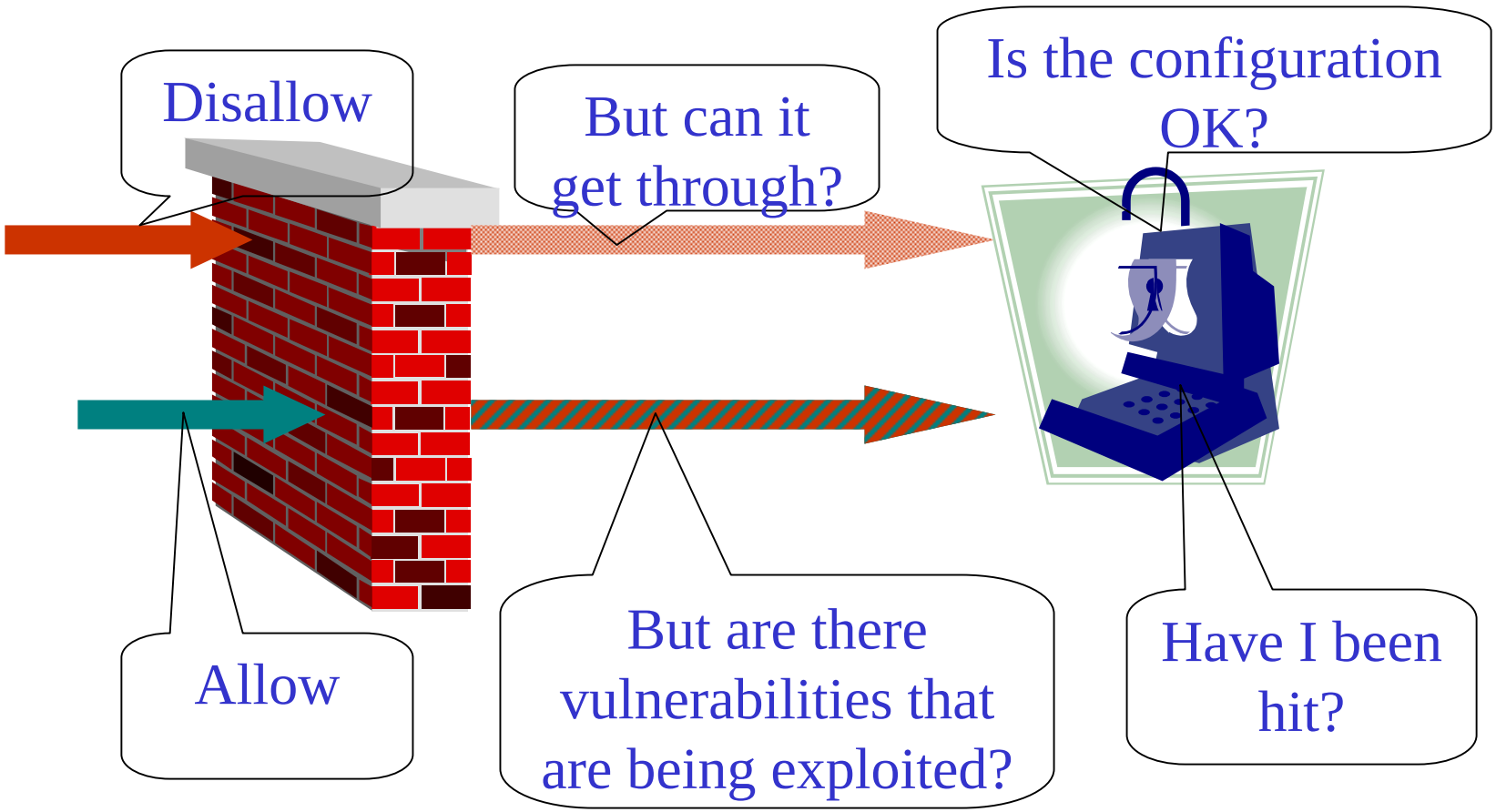
1 – What is it?

The Hypothesis

"… if I can't prevent it, can I detect that the event has occurred? … "

See http://www.gammassl.co.uk/topics/time/index.html

Network Intrusion Detection



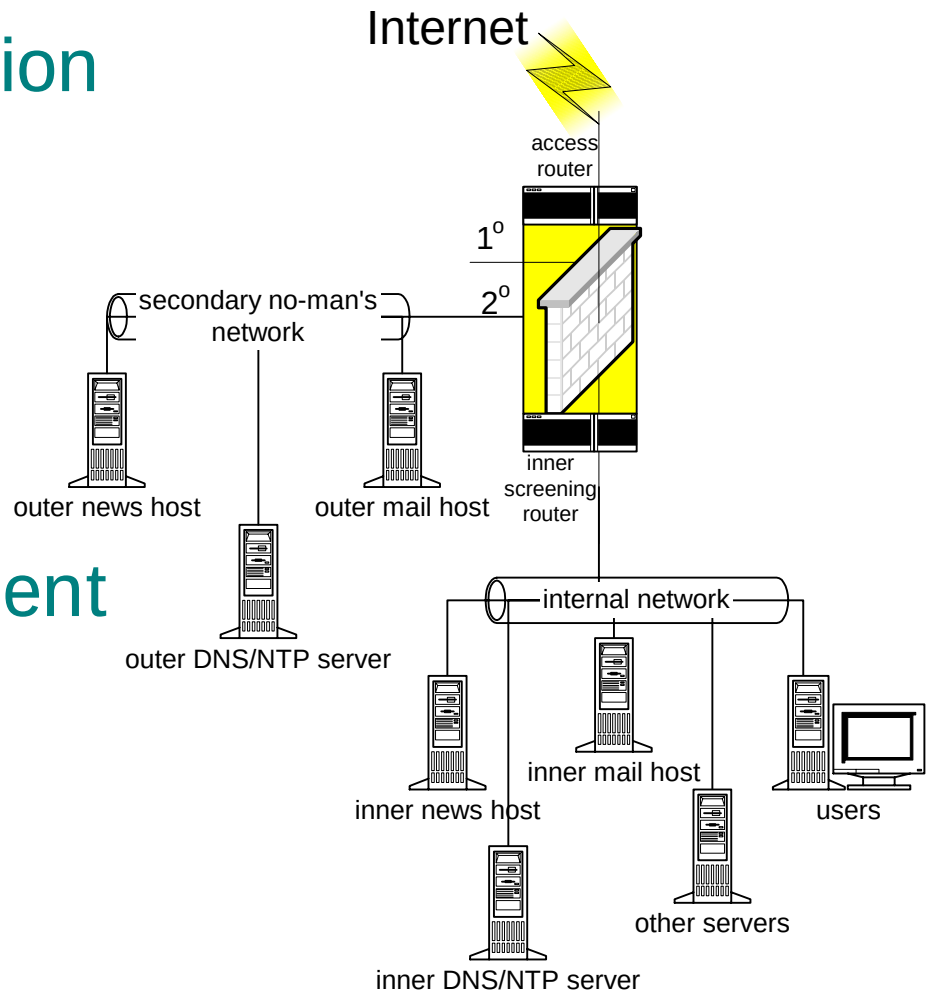
Is this Anything New?

- NO

- What about CCTV, PIRs etc
- What's in common:
  - *If a preventive control fails …*
  - *Can I detect the event/impact?*
  - *Can I do that in good time?*

Types of IT Intrusion Detector

- Host Intrusion Detection Systems
- Network IDS
- Network Node IDS
- Vulnerability Assessment Scanners
  - *Host scanners*
  - *Network scanners*



Types of Physical IDS

- Alarm the jewels
- Watch the entrances and exits
- ... for the whole campus or just your company
- Have a security inspection

IT Alerts

- SNMP Trap
- E-mail
- Pager
- Session termination
- Firewall/router reconfiguration

Boss knows

Physical Alerts

- Bell
- Direct line to police/ security /you
- Mantraps (as in Home Alone)

Boss knows

Just Physical and IT?

- No

- Double entry book keeping was probably first!
- IC sensors on smart cards
- Application software, e.g. database table overflows
- Really anything

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Intrusion Management

2 – Any problems?

Principal Problems

- None are fire and forget
- All rely on anomaly detection, even CCTV and PIR!
  - *Reliability of detecting anomalies*
  - *False positives*

How does IT IDS Work?

- Pattern matching packet contents *v.* database of known “signatures”
- Full protocol analysis on data stream
- Concentrate on everything “abnormal”

Getting the Best out of IT IDS

- Careful planning:
  - *What are you protecting, and from whom?*
  - *What vulnerabilities/attacks concern you?*
  - *Choice of NIDS versus NNIDS*
- NIDS: dedicated server/performance limitations
- False positives

RealSecure Network Sensor: RealSecure detects all occurrences of the string "GNUTELLA CONNECT" on any port. Although highly unlikely, a false positive is possible if this string occurs in network communications not associated with a Gnutella connection.

Extract from ISS Signature Reference Guide Version 6.0

An Aside (?)

- Substantive (financial) audit techniques find anomalies:
  - *Are the processing rules followed*
  - *Are the results reasonable*
  - *What data suggests misdeeds*
- Examples:
  - *1% interest on mortgage loan*
  - *Same bank account on payroll and purchases*

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Intrusion Management

3 – Why all the interest?

Why all the Interest

- Substantive financial audit techniques – well known and well understood
  - *but there are still troublesome areas such as derivatives .. Can you really detect errors?*
- Physical IDS - well known and well understood
  - *but still in the news...*
- IT IDS – not well known, less well understood
  - *Will standardisation help?*

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Intrusion Management

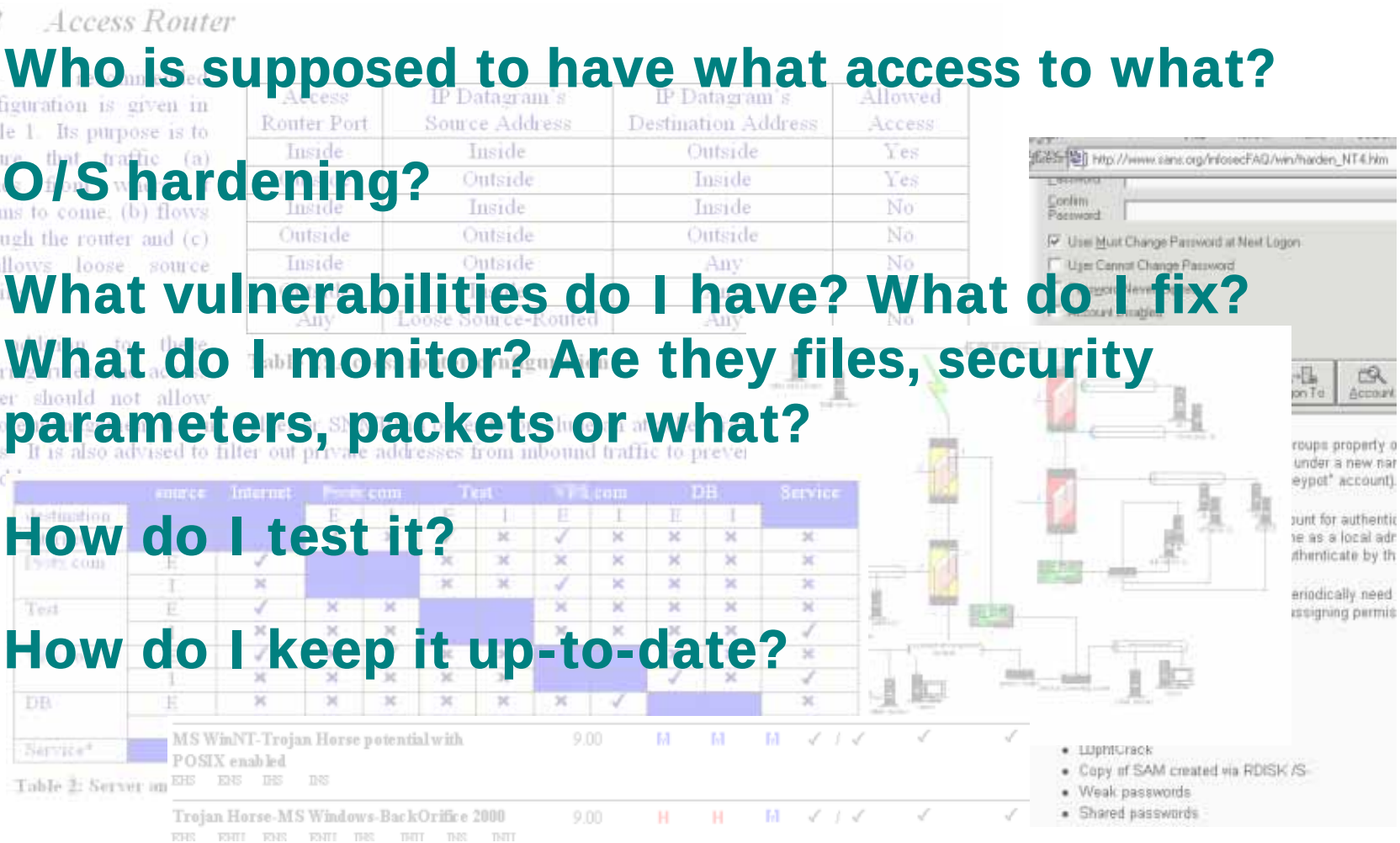
4 – Some IT advice

The Management Cycle

- All ISMS components must adhere to a common security policy
- Scale responses to alarms
  - *Serious intrusions → immediate response*
  - *Mundane → regular examination of logs*
- Training
- Keep up-to-date

Network Security Policy

- Who is supposed to have what access to what?
- O/S hardening?
- What vulnerabilities do I have? What do I fix?
- What do I monitor? Are they files, security parameters, packets or what?
- How do I test it?
- How do I keep it up-to-date?



In Summary

- NIDS/NNIDS tells us if we are under attack
- HIDS tells us if we have been attacked
- VA tells us if we are/may-be vulnerable to attack
- There is overlap between the approaches, but also feedback
- But is it up-to-date?

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1 – What do the standards say?

What does ISO/IEC Say?

- 9.7.2 Monitoring System Use
  - *(c) unauthorised attempts such as*

    ...

  - *(3) alerts from proprietary intrusion detection systems*

What does BS 7799-2 say?

- Annex B (informative)
  - *B.4 Check Phase …*
  - *EXAMPLE 1:*
    The automatic actions of intrusion detection technology. A network intrusion detector checks whether the security of other components has been penetrated.

What else ...

- Annex B also talks about:
  - *Routine checks*
  - *Self-policing procedures*
  - *Learning from others*
  - *Internal ISMS audit*
  - *Management Review*
  - *Trend analysis*

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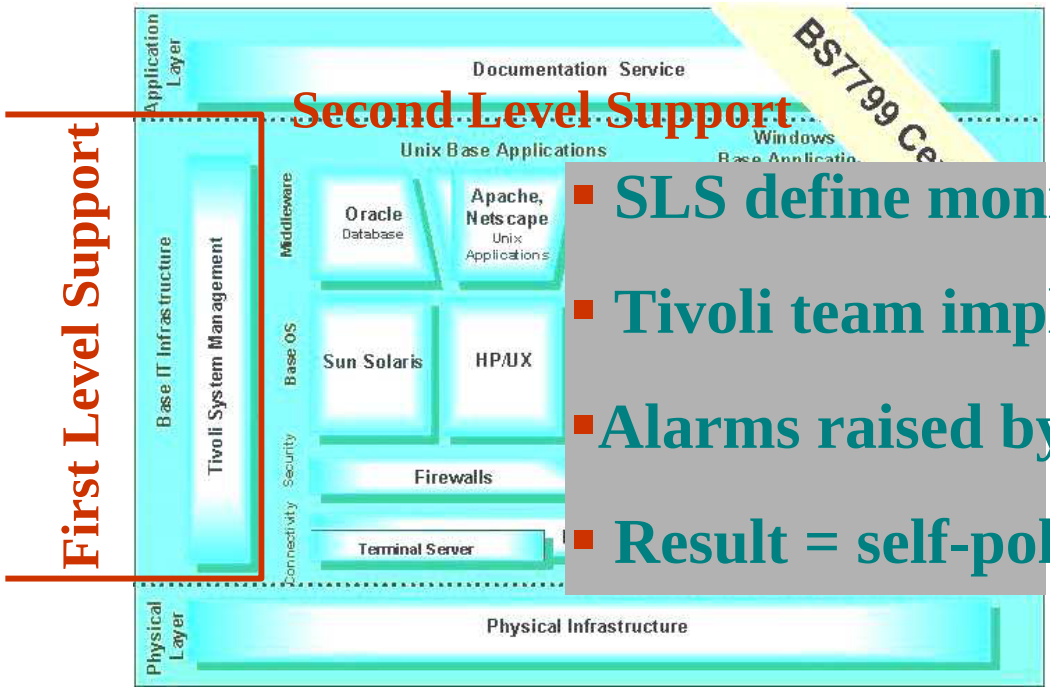
2 – A case study

Vodafone Information Systems

Management Structure

- Single team ↔ one team per “architectural” component

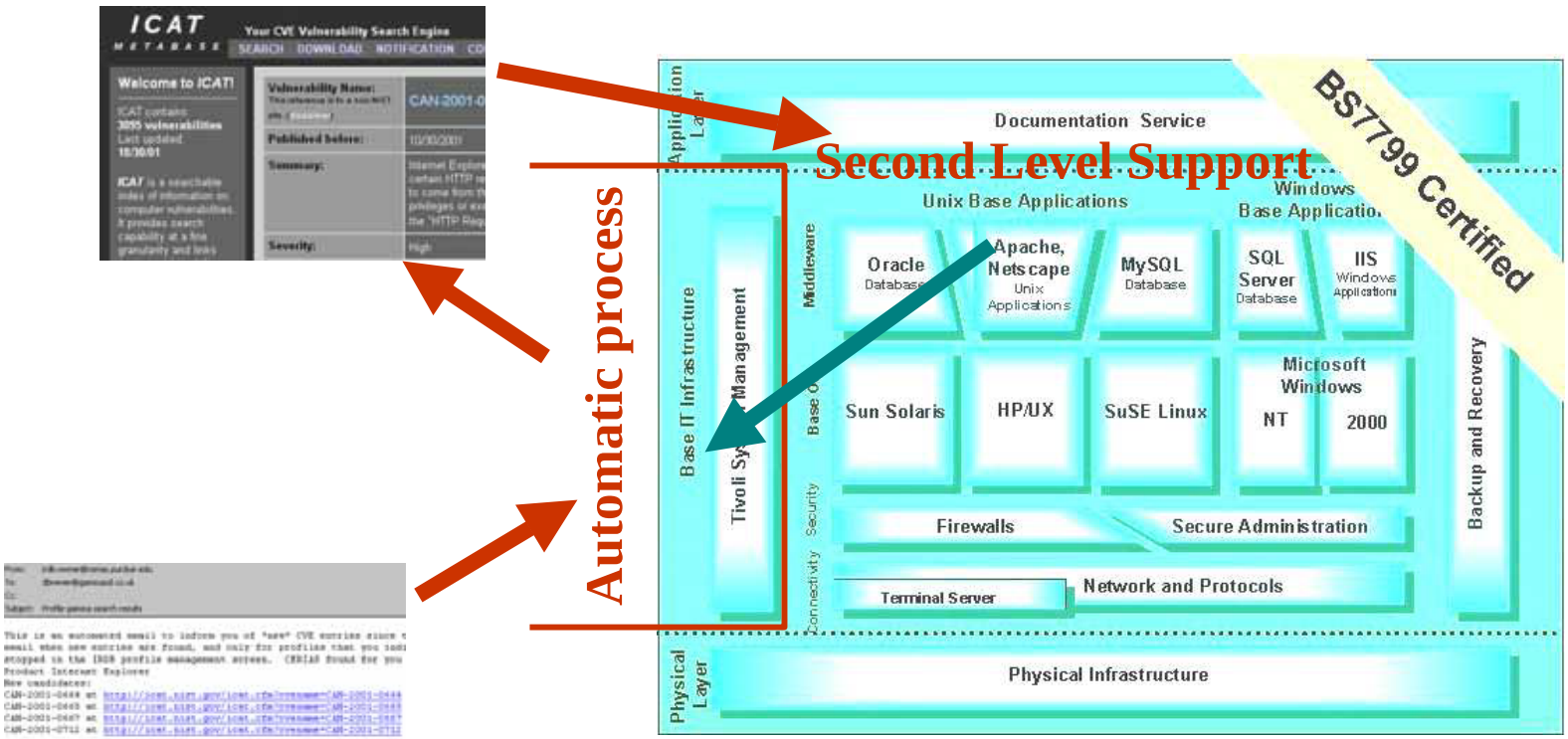


- **SLS define monitoring requirements**
- **Tivoli team implement them**
- **Alarms raised by ARS**
- **Result = self-policing procedure**

- Use for IDS

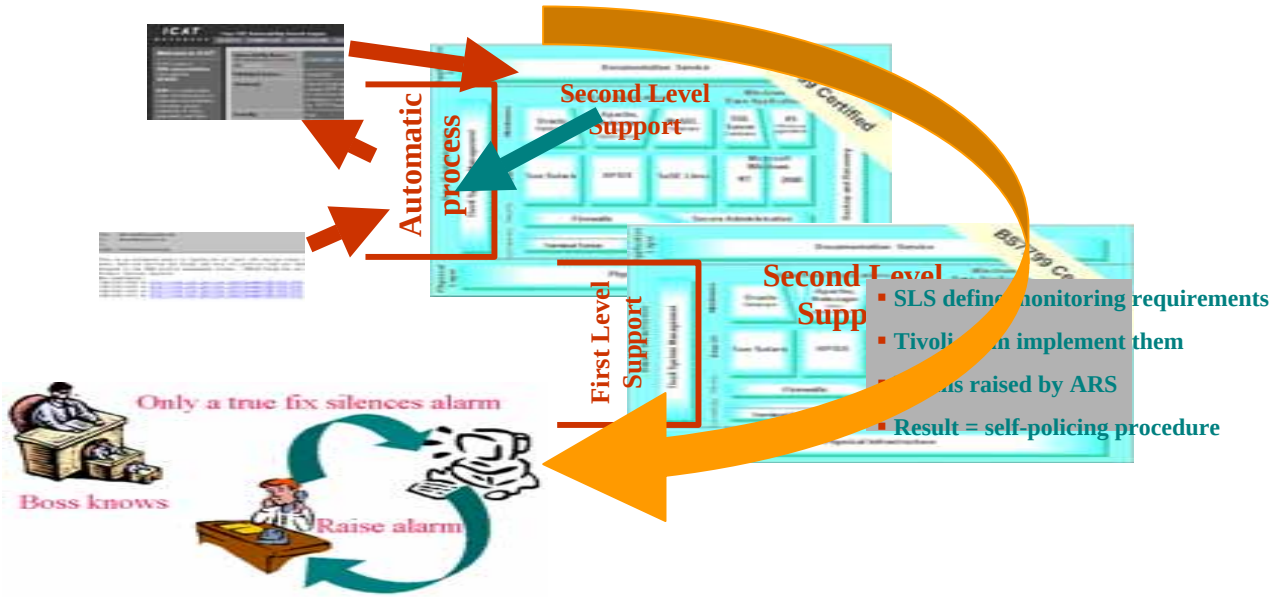
Use for CERT

- The implementation is automated and self-policing



And everything Else

- Just an extension to trapping database problems..



- And what else....

Observations and Conclusions

Observations/Conclusions

- IDS is nothing new but very, very important
- It fits extremely well with BS 7799 – we designed it that way
- Major problem is new attacks and false positives
- At least with IT infrastructure there are methods to keep up to date

Thank you

I will take questions in the panel later