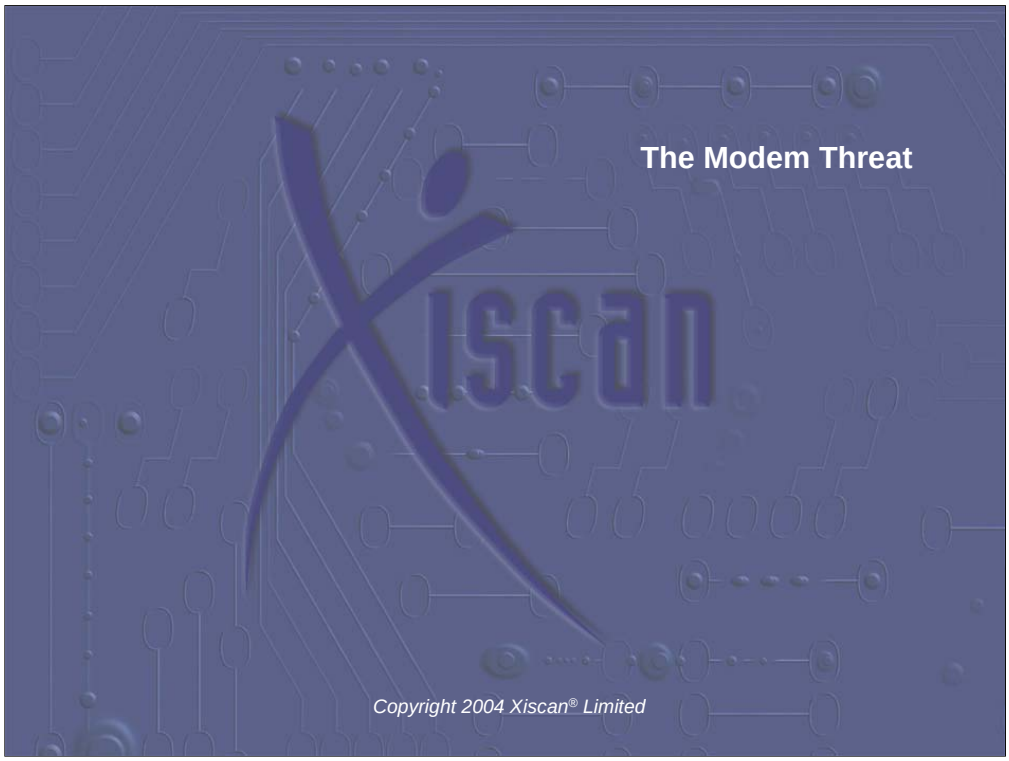
The Modem Threat
Xiscan
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About Xiscan Limited

- UK based
- Blue chip client base in the UK & Europe
  - Finance, Retail, Utilities, Local Government...
- Specialists in Modem Security
  - Through supply of our own Xiscan telephony audit tool
  - Through provision of managed modem scanning services

Agenda

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- The Problem
- Dial-out Access
- Dial-in Access
- Managing the Risk
- Questions
- Conclusion

The Problem

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- Expert Opinion
- Case Histories
- Company Attitudes
- Widespread Modem Use

The Problem: Expert Opinion

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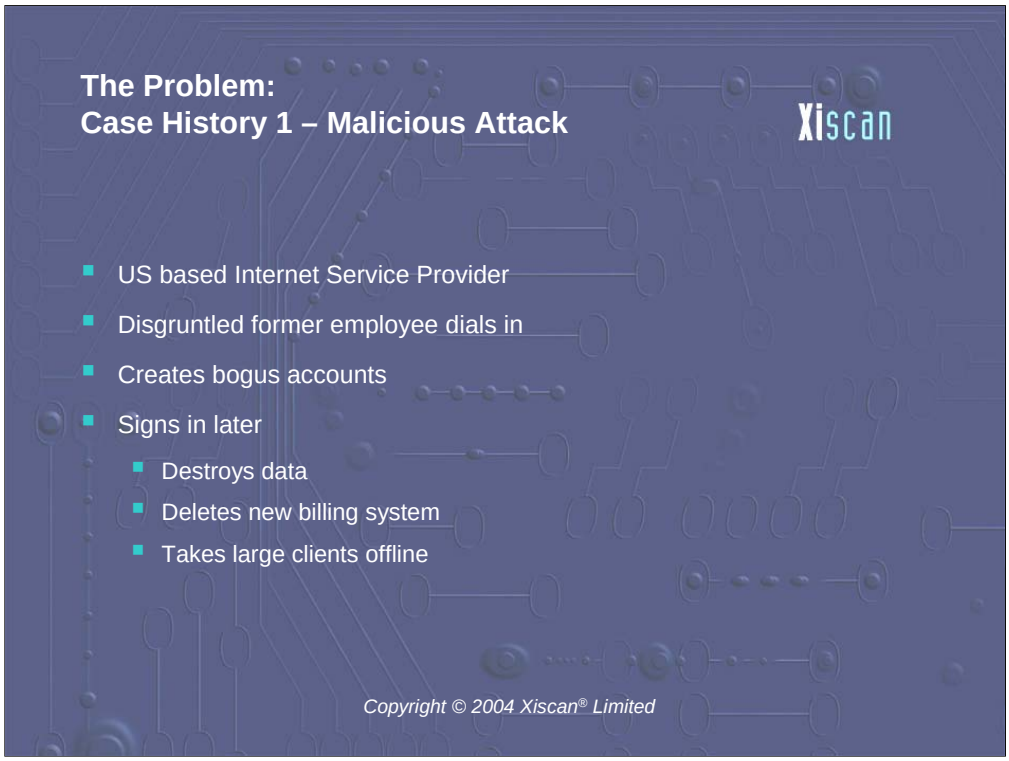
"...most large companies are [*probably*] more vulnerable through poorly inventoried modem lines than via firewall-protected Internet gateways"

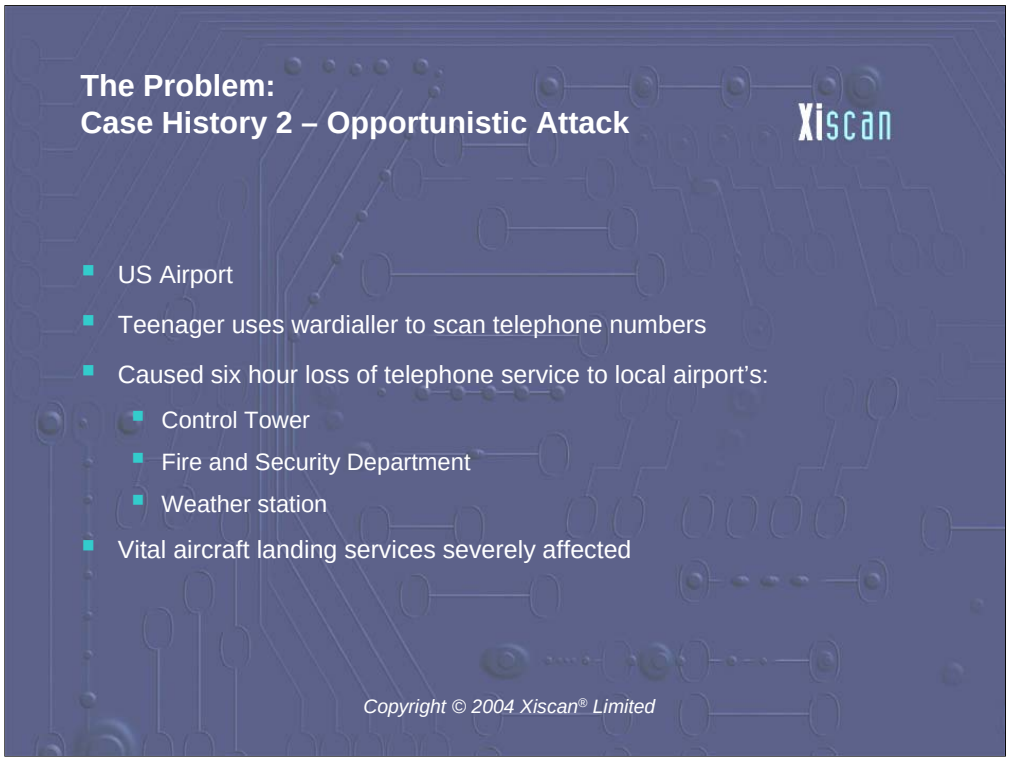
Hacking Exposed: Network Security Secrets and Solutions. McClure, Scambray & Kurtz. Osborne,1999

"Unauthorised modems are one of the most overlooked security flaws in corporations today. Companies often have modem lines they don't even know are there."

Information Week



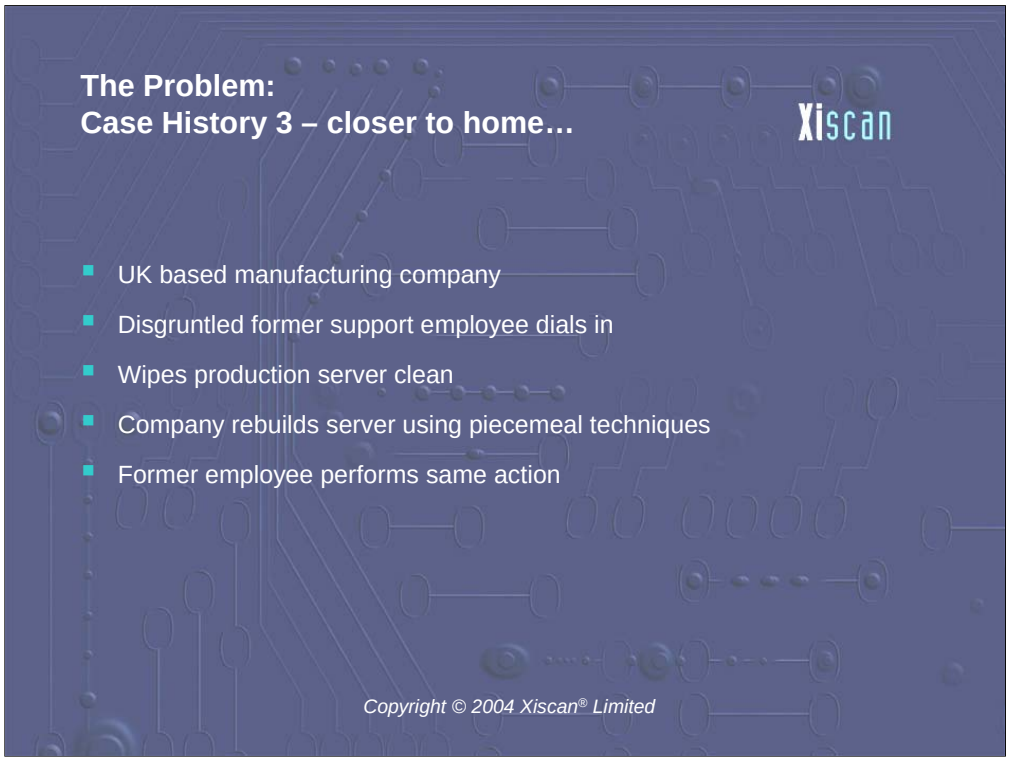
Most organisations will have disgruntled employees, unfortunately including those willing to destroy, corrupt or steal information.



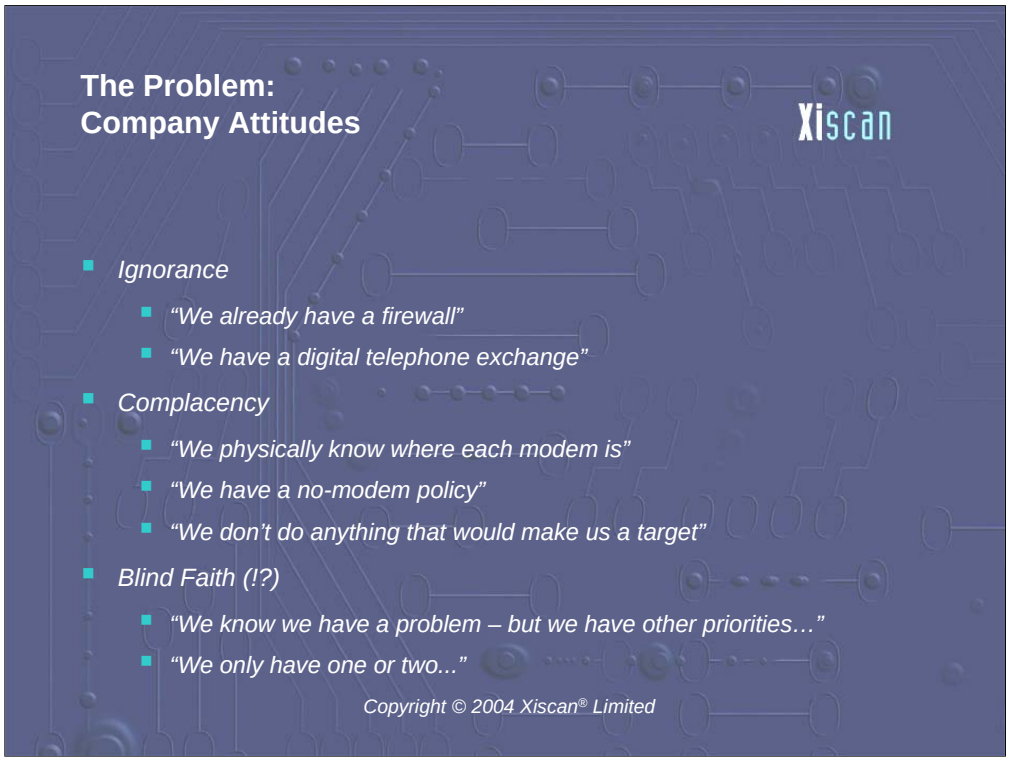
(A wardialler is a tool used by hackers to automate dialling of large ranges of telephone numbers).

This is a classic example of a violation performed by a person with no prior relationship to, or knowledge of, the organisation that they are attacking.

Free tools are available on the internet – with full instructions on how to use them. Some hackers are simply focussed on breaking in to any system.

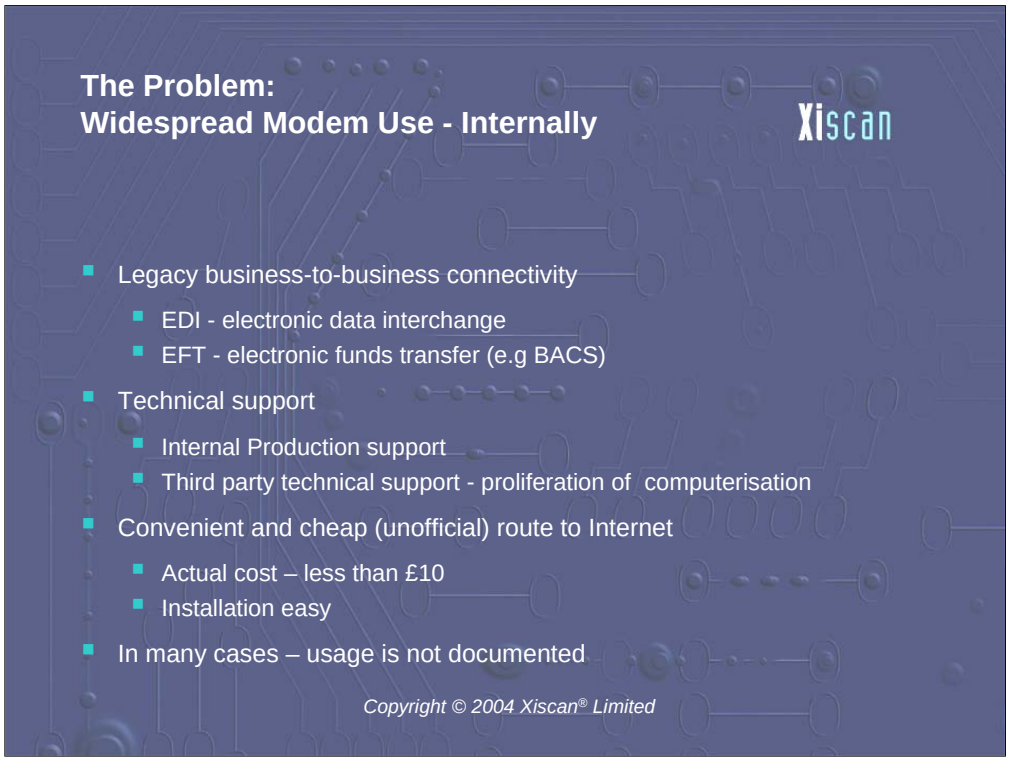


… and closer to home



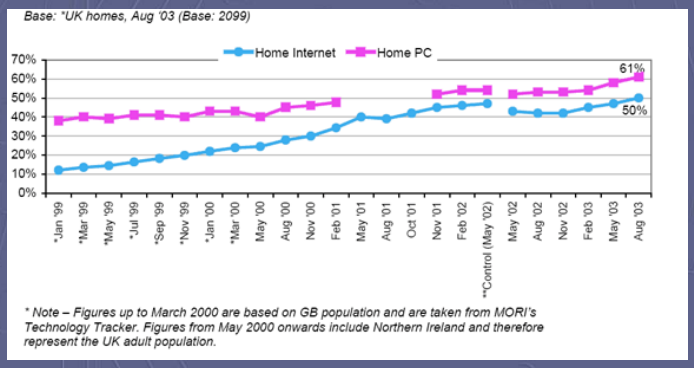
Digital phone systems are not invulnerable.

There is a variety of devices that will plug in and support analogue modems. You may already have 'analogue features' installed (to allow fax machines for example).



The use of modems within organisations is far more widespread (and concerning) than most companies appreciate. It can be as high as 5% of extensions documented as having modems attached.

The Problem:
Widespread Modem Use - Externally



- ~12 million UK homes have Internet Access
- Despite broadband, 8.75 million homes still use modem / PSTN (73%)

(source: http://www.ofcom.org.uk/static/archive/oftel/publications/research/2003/q14intres1003.pdf)

The Problem: Risk

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Internally

- Increased + insecure usage
- Lack of understanding/commitment

Externally

- Increased + knowledgeable usage
- Motivation: hacking is 'cool'

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… now let's look at the technicalities

- Dial-out access
- Dial-in access

Dial-out Access

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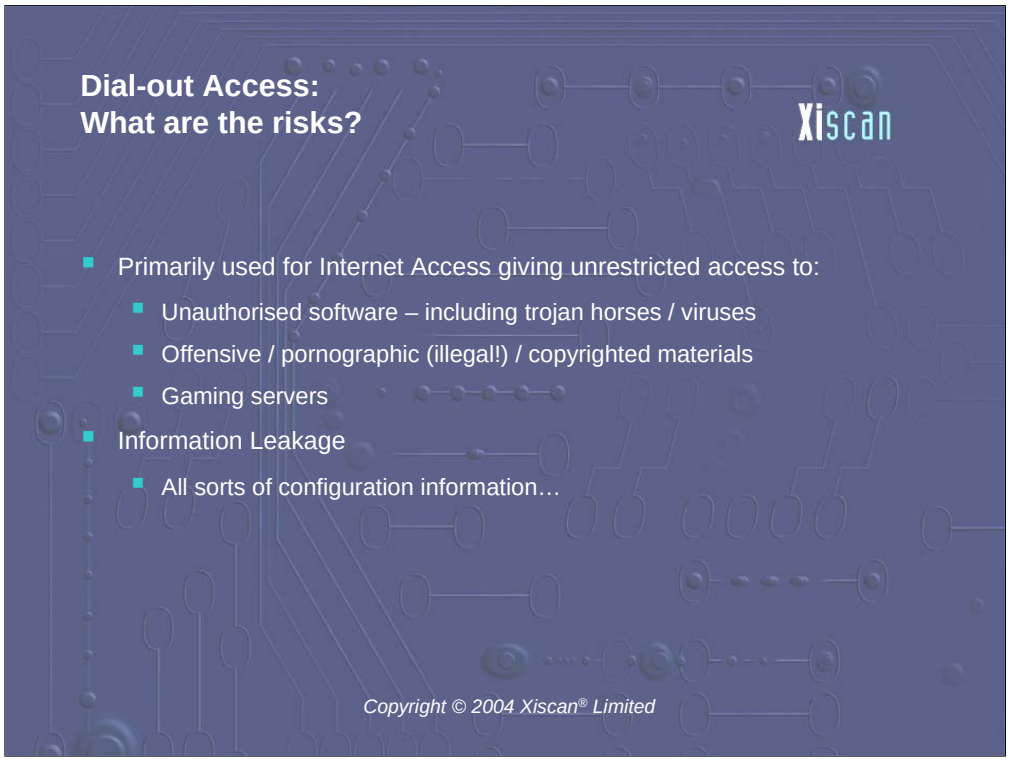
- Definition
- What are the risks?
- Practical demonstration

Dial-out Access: Definition

...where a user *internal* to your premises uses a modem connected to a computer and your telephone network to connect to an *external* system (typically an Internet Service Provider)

- Internal party *dials out* to an external Internet Service Provider (ISP)
- Direct two way connection now formed



Information Leakage…

As the demonstration will show, the nature and amount of accessible information is alarming…

Machine information

Company information

Data files…

Information Security Breaches Survey (ISBS) 2002 Findings - Web Access

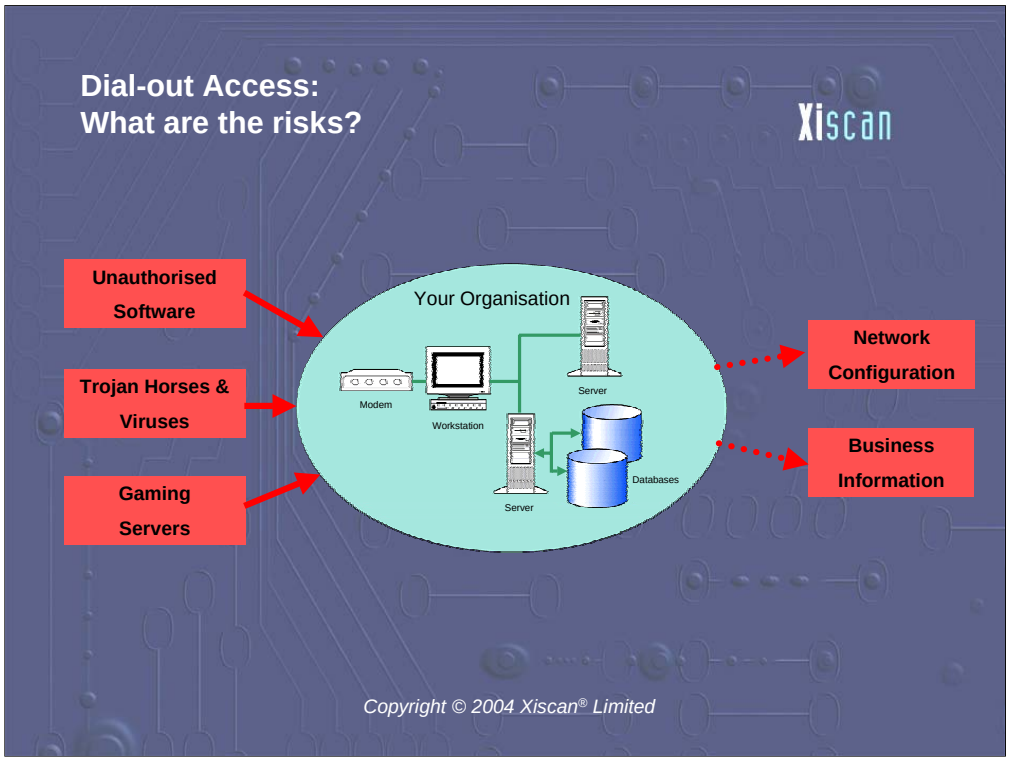
Survey relates to 1000 UK businesses

Relevant Findings for Large Businesses (250+ employees):

- 68% restrict web browsing
- 78% log and monitor which web sites staff

With good reason…

- 51% experienced security incidents related to web access
  - 36% experienced virus infection from downloaded files
  - 26% discovered staff accessing inappropriate sites
  - 11% disciplined staff for excessive web surfing

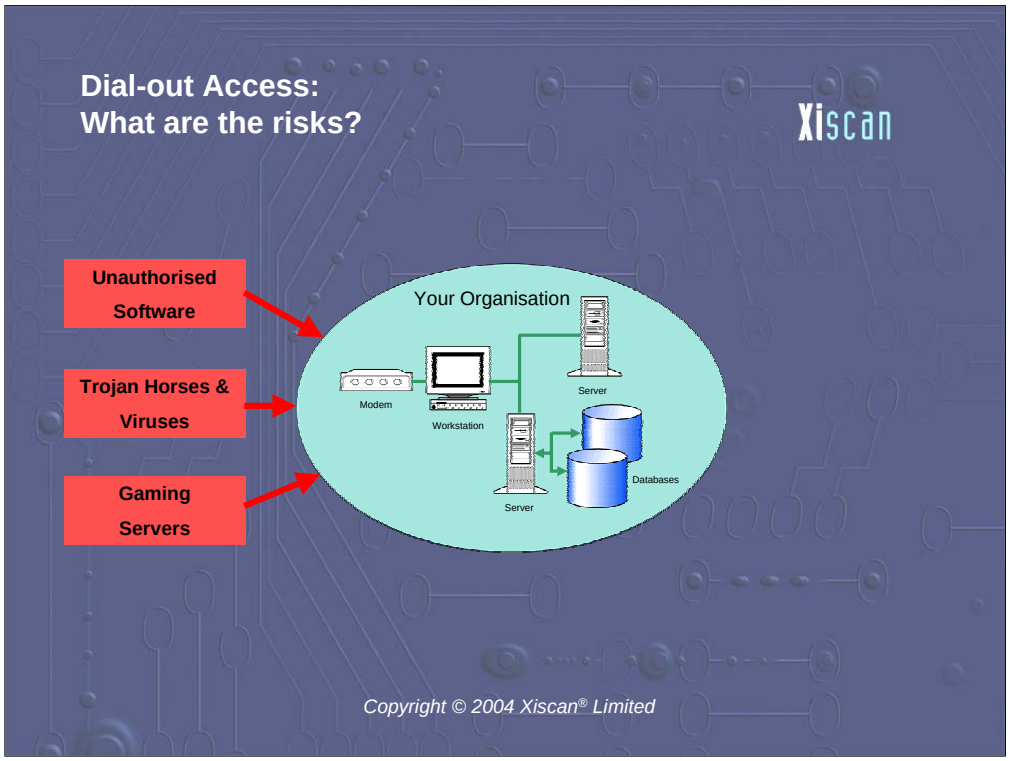


The frightening aspect of dial-out access is the lack of control…

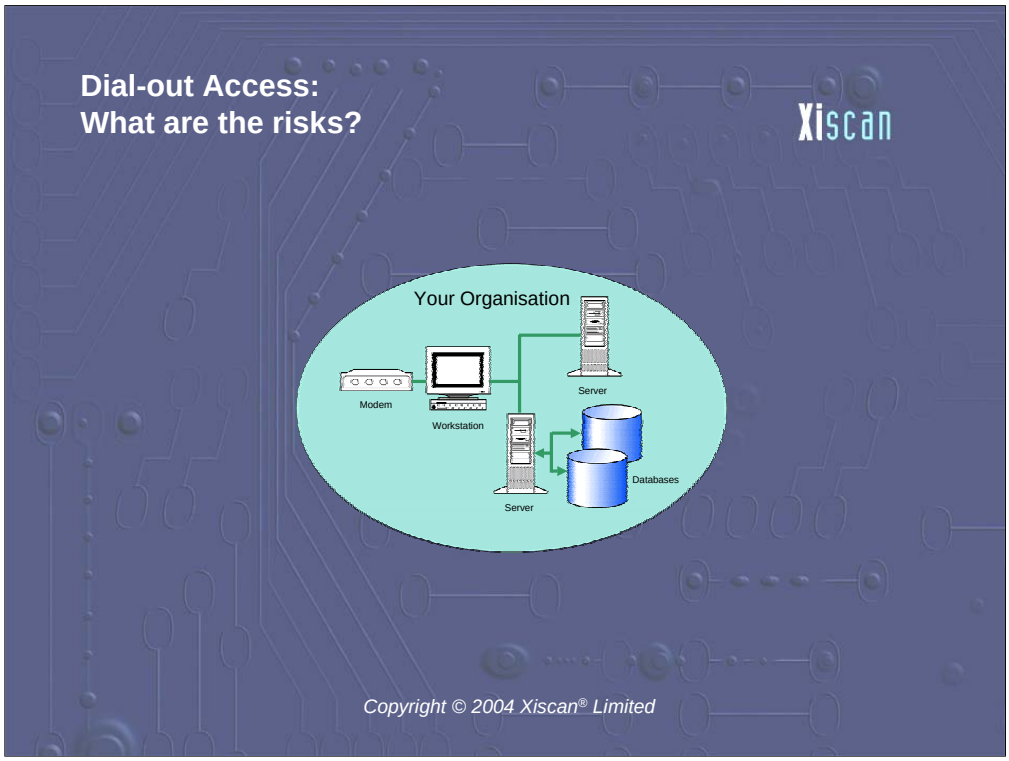
Lack of control blocking illegal and unwanted materials reaching the corporate network.

Lack of control over what information external parties can actually gather about your organisation.

Lack of traceability…



A user is unaware of the information leaking out...



...Your view is even more restricted

Dial-out Access: Demonstration

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Security issues related to dial-out access

Dial-in Access

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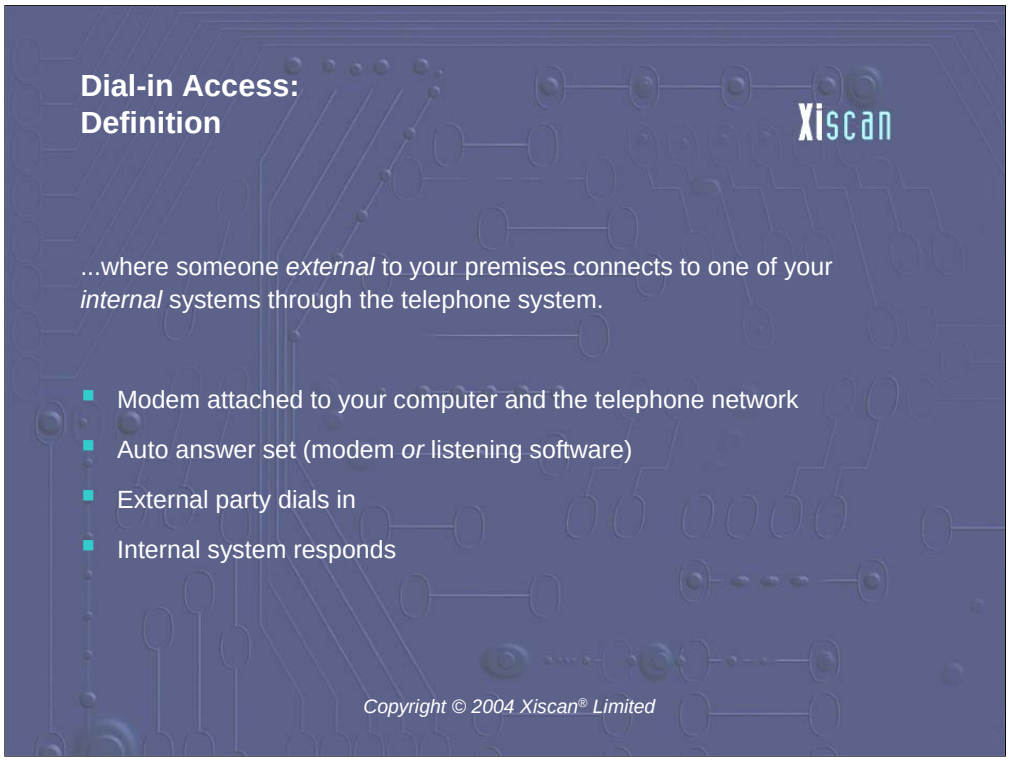
- Definition
- What are the risks?
- Practical demonstration



It's not just your staff that pose a risk…

Dial-in (remote) access can be a contractual obligation for third party support of hardware or software.

Also, there can be lots of hidden modems: telephone systems, routers, disk arrays…

Information Security Breaches Survey (ISBS) 2002 Findings (Remote Access)

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Relevant Findings for Large Businesses (250+ employees):

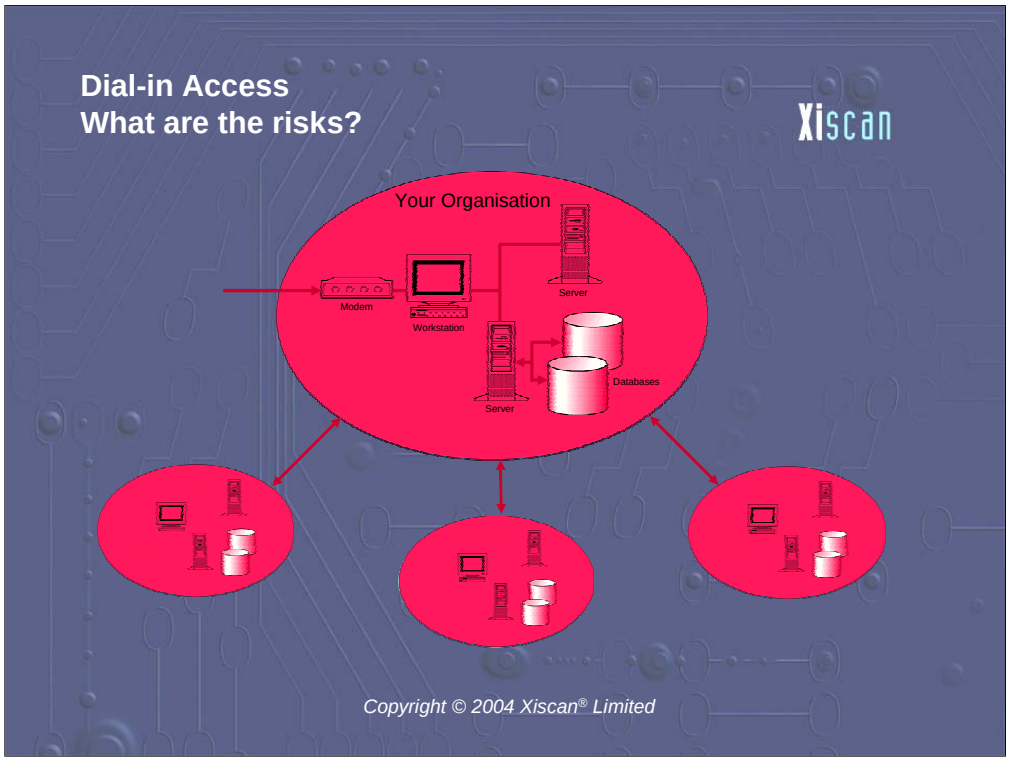
- 71% allow remote access by staff
- 91% restrict which staff can access systems
- 45% restrict access to non-business critical systems

But… that's only access that is *known* and *officially* sanctioned:

In our experience, most if not *all* companies of 1000+ employees have:

- remote (dial-in) access to one or more business-critical systems (including telephone systems, networking infrastructure)
- dial-in access points that are not sanctioned by IT Security
- dial-in access points located on officially unallocated telephone numbers

Dial-in access offers read-write access and the potential for significant damage.



The damage may not be limited to just your organisation either – any direct links to partner organisations may be compromised – and vice-versa!

Dial-in Access: Demonstration

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Security issues related to dial-in access

How Big is the Problem?

From our experience of large organisations:

- 0.5 – 1.5% of telephone extensions provide dial-in access (i.e. ***up to 15 extensions per 1000***)
- 3:1 ratio of dial-out:dial-in
  - Likely to increase with the prevalence of integrated laptop modems

Managing the Risk

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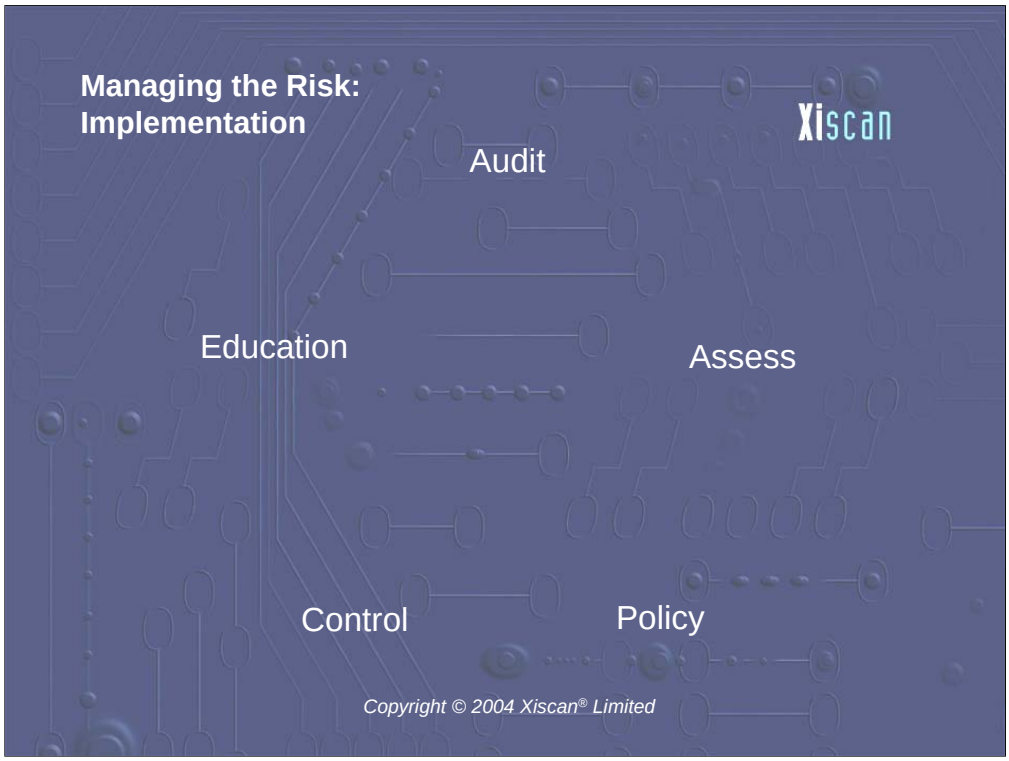
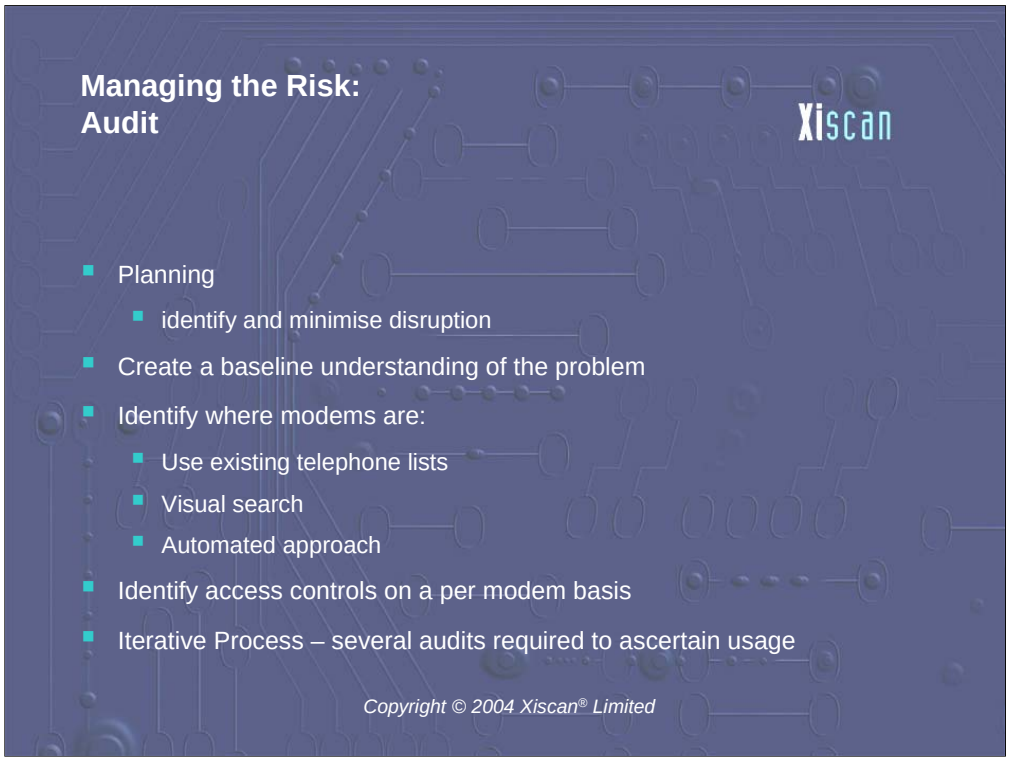
- Strategic approach, as part of the *overall* Security Policy
  - Planning
  - Discrete implementation stages
    - Audit
    - Assess
    - Policy
    - Control
    - Education
  - Constant re-appraisal
- Practical issues



Where you start depends on where you currently are…
You may already have a security policy that covers modem access for example.



Techniques used to locate modems can include…
Reviewing existing telephone lists
Visual search
Automated approach – using software tools

Audit and assessment are key to providing information to feed into a modem security policy.

Managing the Risk: Policy

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- Define a strategy that is correct for the organisation
- Document:
  - Objectives
  - Acceptable use
  - Implications for violation
  - Create an ‘acceptable’ modem register
- See also:
  - http://www.xiscan.com
  - http://www.sans.org
  - http://www.cert.org

Managing the Risk: Control

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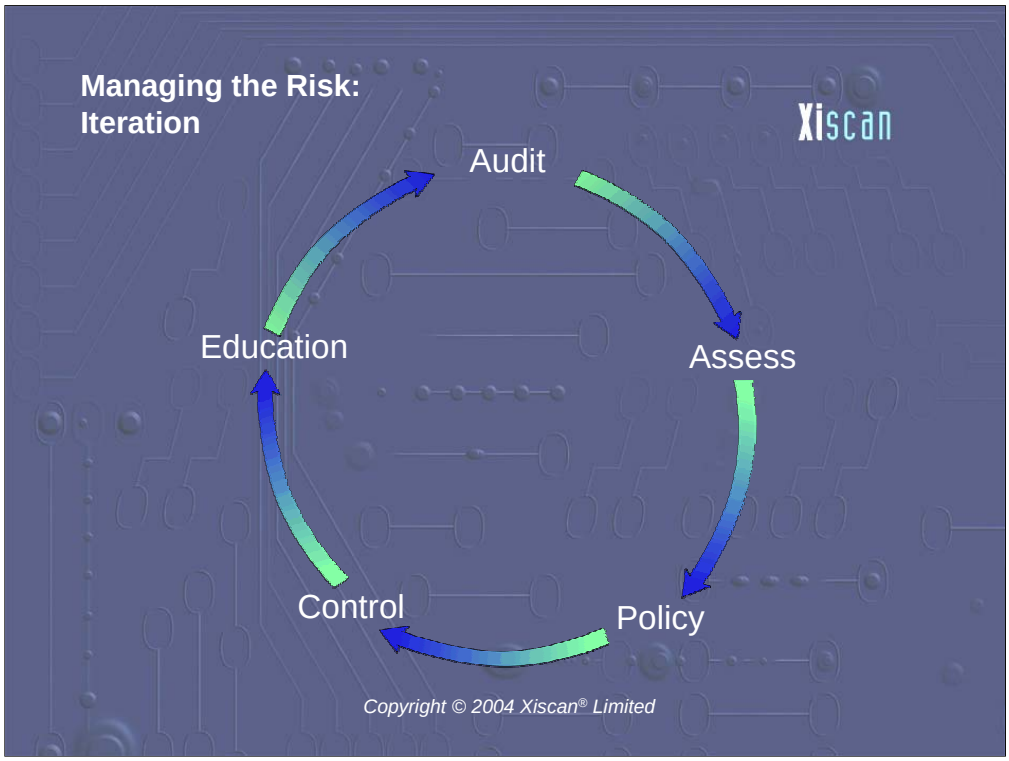
Take control of modem access

- Remove unjustified / unwanted modems
- Ensure modems are correctly configured
- Ensure adequate security controls are in place
  - Passwords
  - Remove identifiable banners
  - Use callback
    - Avoids calls from arbitrary numbers
  - Authentication mechanisms
- Consider an integrated dial-up solution (focuses control), or a VPN

Prevention is better than cure…

Educate users to the risks posed by unauthorised modem access.



Just as when you buy a virus checker, you have to keep it up to date, iteration is key to managing the modem risk. Business requirements, telephone systems and IT systems are not static. All of the above processes must be iterated through.

Modems can be very difficult to locate…
Telephone lists go out of date
Modems can be difficult to see (under floors, built into equipment, etc)

If you have a policy – how do you enforce it?

How do you educate staff within your organisation?

Business Benefits …Is It Worth It? (1)

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- Increased understanding of IT infrastructure
  - Increased responsiveness to security events
  - Indirect Savings
    - e.g. organisation with 3,500 staff and 20,000 telephone numbers
- Protection of investment in:
  - Business-critical systems
  - Infrastructure (e.g. firewall)
  - Brand/Image
- Promotion of Security Awareness
  - Prevention is more cost-effective than cure

Business Benefits …Is It Worth It? (2)

- Compliance
  - Legal obligation – data protection
  - BS7799
  - Visa AIS Security Standards
- Competitiveness/Business Advantage

Summary

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- Basic introduction to the problem
- Dial-out access
- Dial-in access
- Practical solutions

Questions

Conclusion

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The single most important point to take away from this seminar :

"Any modem configured incorrectly poses a very real threat to the security of your organisation…"