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From commodity to true value
How to give essence to IT audit today

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IT Auditing in the ‘90s

Pre-Internet era

- Either stand-alone systems or some connectivity, which were not equivalent to what we call “online” today
- All started way before - first known IT-based fraud in 1964 at Equity Funding Corporation of America.
- Collapse of the Barings Bank in 1995 - key characteristics:
  - some level of IT involvement
  - segregation of duties
  - lack of monitoring controls
- The Citibank “hack” in 1994 - 10M USD stolen by Vladimir Levin
- IT Auditing:
  - Auditing General Computer Controls
  - Access control reviews - standard Work Programs
  - “focused” - mostly servers

IT Auditing around Y2000

New approaches

- Pentesting - breaking into systems for fun and for profit
- False sense of security
    - protecting all computers in a network - X vulnerability + pwd crack
    - capturing network traffic in switched LAN
    - default passwords
    - capturing SSL network traffic in clear
- Conflicts: a series of controls operating effectively, lots of controls tests show controls matching best practices, yet the security-level is down.
- Key access controls focus on password controls, whilst successful attacks may not require passwords at all or obtain valid passwords in clear.

IT Auditing around Y2000

Web technologies

- Completely new type of vulnerabilities
  - (lack of) secure development
  - some standard and many unique development issues
- Webapp vulnerabilities
  - Are they scope of an IT audit?
  - Is it enough to check that certain apps/systems have been tested?
  - Scope/quality of testing + vendor selection (accreditation + staff limitation)

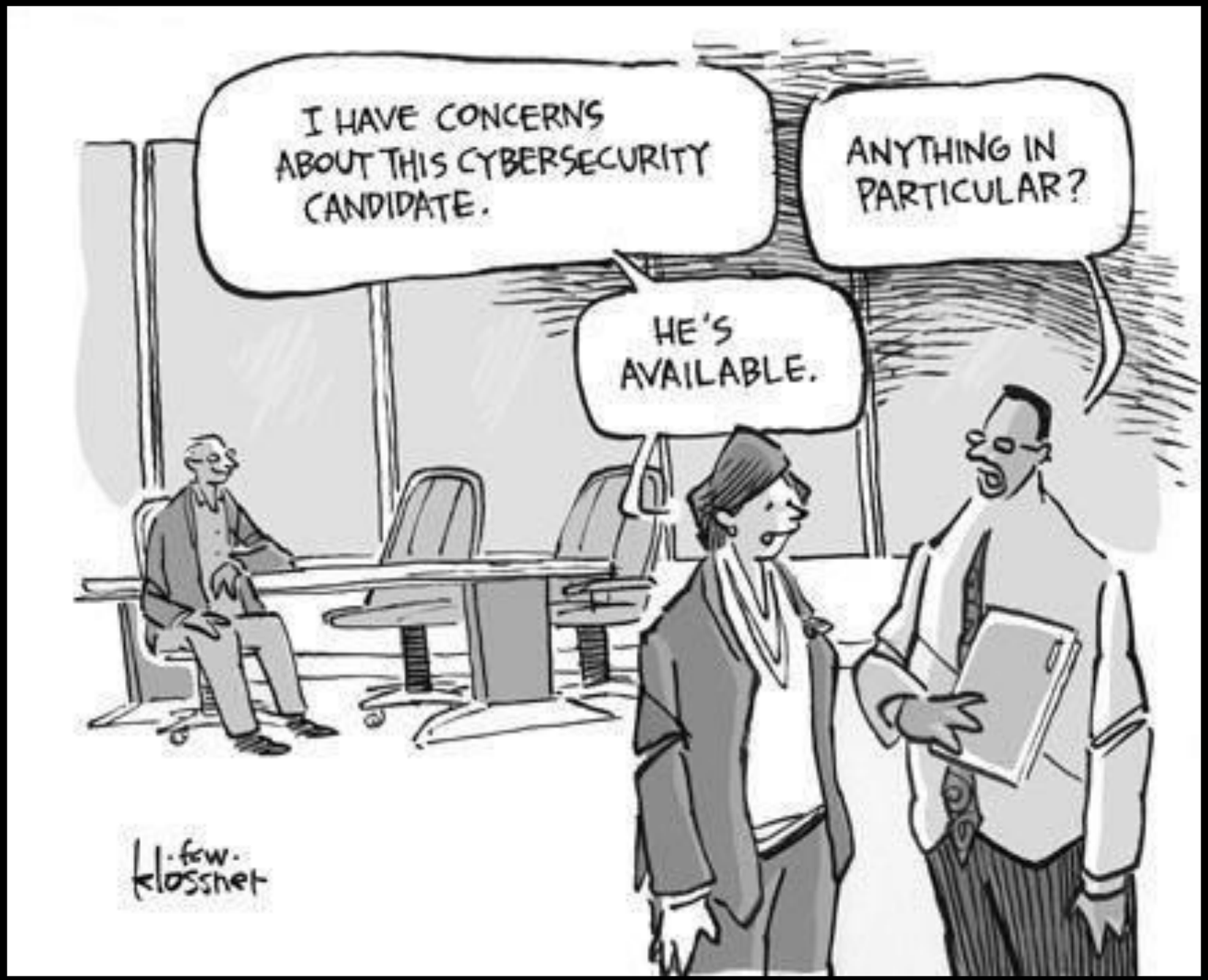
IT Auditing - recent years

The new and the very old technologies

- New technologies
  - Mobile (mainly Android and iOS)
  - Embedded systems
  - Infrastructure/facility protection - entry protections, CCTV, alarms, electricity, cooling
- Legacy systems
  - Mainframe systems
  - z/OS, z/TPS, OS2200 etc.
  - COBOL, PL/I, JES
- The untouched field
  - SCADA
  - Embedded systems

Almost completely out of the radar of IT audits.

Probably the biggest problem in Cyber Security

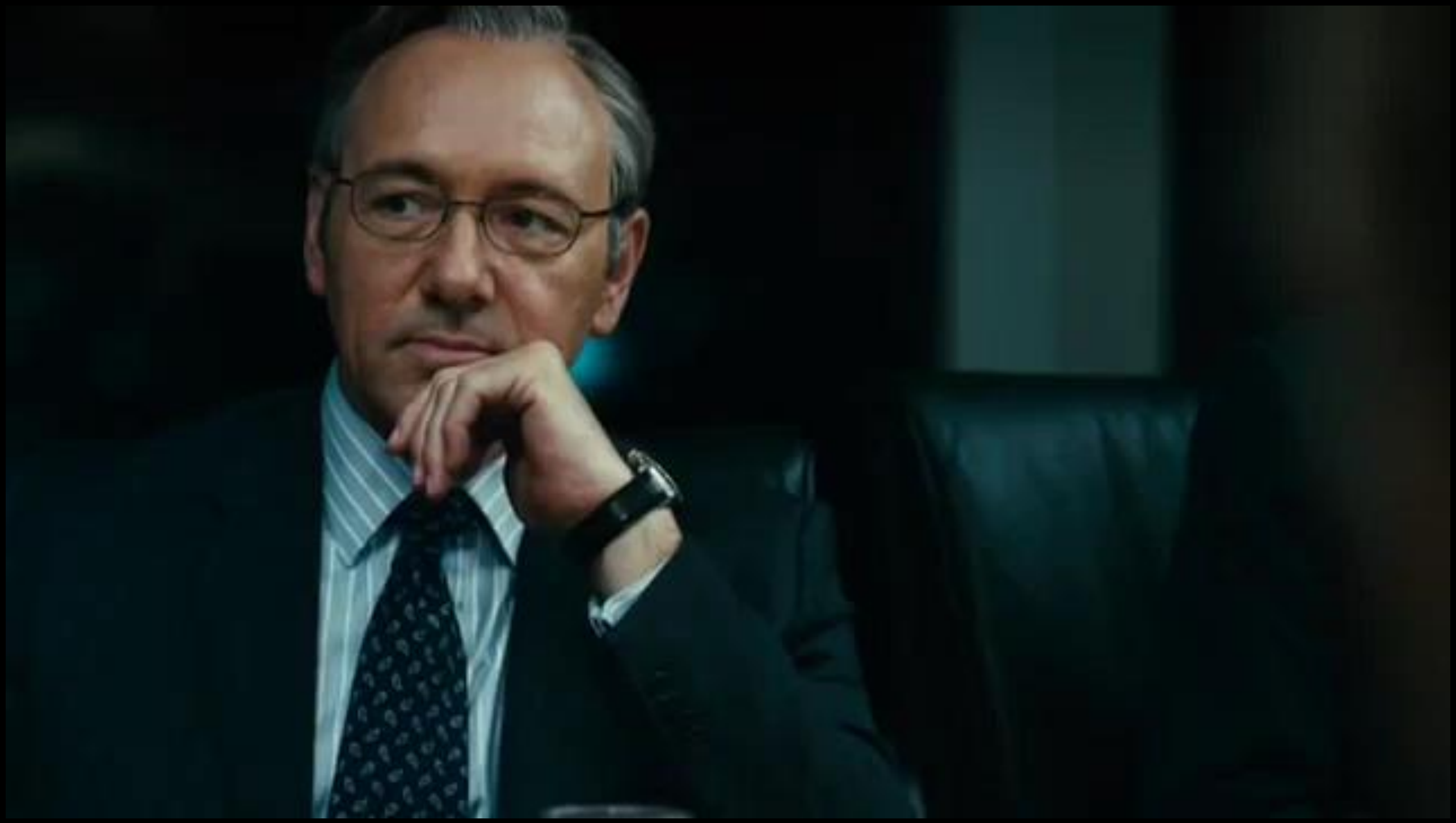


source: jklossner.com

IT Auditing - nowadays

Purpose of IT audits - Risk mitigation

- Recent fraud types
  - spear phishing
  - custom malware
  - insider actions - e.g. kick-back, stealing
  - blackmailing
  - price fixing
  - over-pricing
- Things can also go wrong unintentionally



IT Auditing - nowadays

Purpose of IT audits - Risk mitigation

- Operate with simple questions, e.g.:
  - How does this application authenticate users?
  - What makes the authorisation decision when such transaction is initiated?
- Be sceptical
- Test the quality of works: security tests, UAT
- Verify the acceptance of works performed
- Test ad-hoc - anytime, anywhere
- Exercise
- Be prepared - at some point, someone might fail
- Know your enemy - threat assessment

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Thanks for listening