5 Myths That Can Put Your Mainframe At Risk

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Introduction

- Rui Miguel Feio
  - Security lead at RSM Partners (UK)
  - I am a mainframe technician specialising in mainframe security
  - Experience in other platforms as well
  - I have been working with mainframes for the past 16 years
  - Happy to take questions as we go

Myth #1
The mainframe is dead

Myth #1

- Since the advent of the PC in the 1980's the mainframe has been set for extinction.
- "The PC is now as powerful as a mainframe!"
- Only 'old' people know about mainframes.

Myth #1 – Some Facts

- IBM keeps bringing out new mainframes:
  - z13 – Jan 2015
  - zEnterprise BC12 (zBC12) – Jul 2013
  - zEnterprise EC12 (zEC12) – Aug 2012
  - zEnterprise 114 (z114) – Jul 2011
  - zEnterprise 196 (z196) – Jul 2010
  - z10 Enterprise Class (EC) – Feb 2008
  - z9 Enterprise Class (EC) – Sep 2005
  - z890 – Apr 2004
  - z990 – May 2003
  - …

Myth #1 – Some Facts

- Mainframe as a whole contributes to 25% of IBM's revenue and 35% of its operating profit*
- 96 of the world's top 100 banks and 90% of the world's largest insurance companies still use mainframes
- 85% of all mission-critical applications run on COBOL and the mainframe**

*Toni Sacconaghi of Bernstein Research
**Microfocus

Myth #1 – Some Facts

- Keeping in sync with the new technologies:
  - Enterprise Linux Server:
    - http://www-03.ibm.com/systems/z/os/linux/els.html
  - Enterprise Cloud Computing:
    - http://www-03.ibm.com/systems/uk/z/solutions/cloud/
  - Enterprise Mobility:
    - http://www-03.ibm.com/systems/z/solutions/mobile.html
  - Enterprise Security:
    - http://www-03.ibm.com/systems/z/solutions/security.html
  - Business Analytics and Big Data:
    - http://www-03.ibm.com/systems/z/solutions/data.html

Myth #1 – Leads to Risks

- Lack of understanding:
  - What the mainframe is and what it can do
- Lack of investment:
  - New solutions for the mainframe
  - Training
- Lack of resources:
  - Not hiring new resources
  - Replacing existing resources

Myth #2

No one hacks the mainframe

Myth #2

- “The mainframe is the most secure platform in the world”
- “Who’s gonna hack the mainframe?!?”
- “You need to be a mainframer to be able to use the mainframe”

Myth #2 – Some Facts

- Although highly securable, the mainframe is not secure by default
    - Like any platform, the mainframe needs to adapt and security needs to be constantly reviewed

- People with no mainframe background are getting interested…
    - http://soldieroffortran.org
    - http://mainframed767.tumblr.com

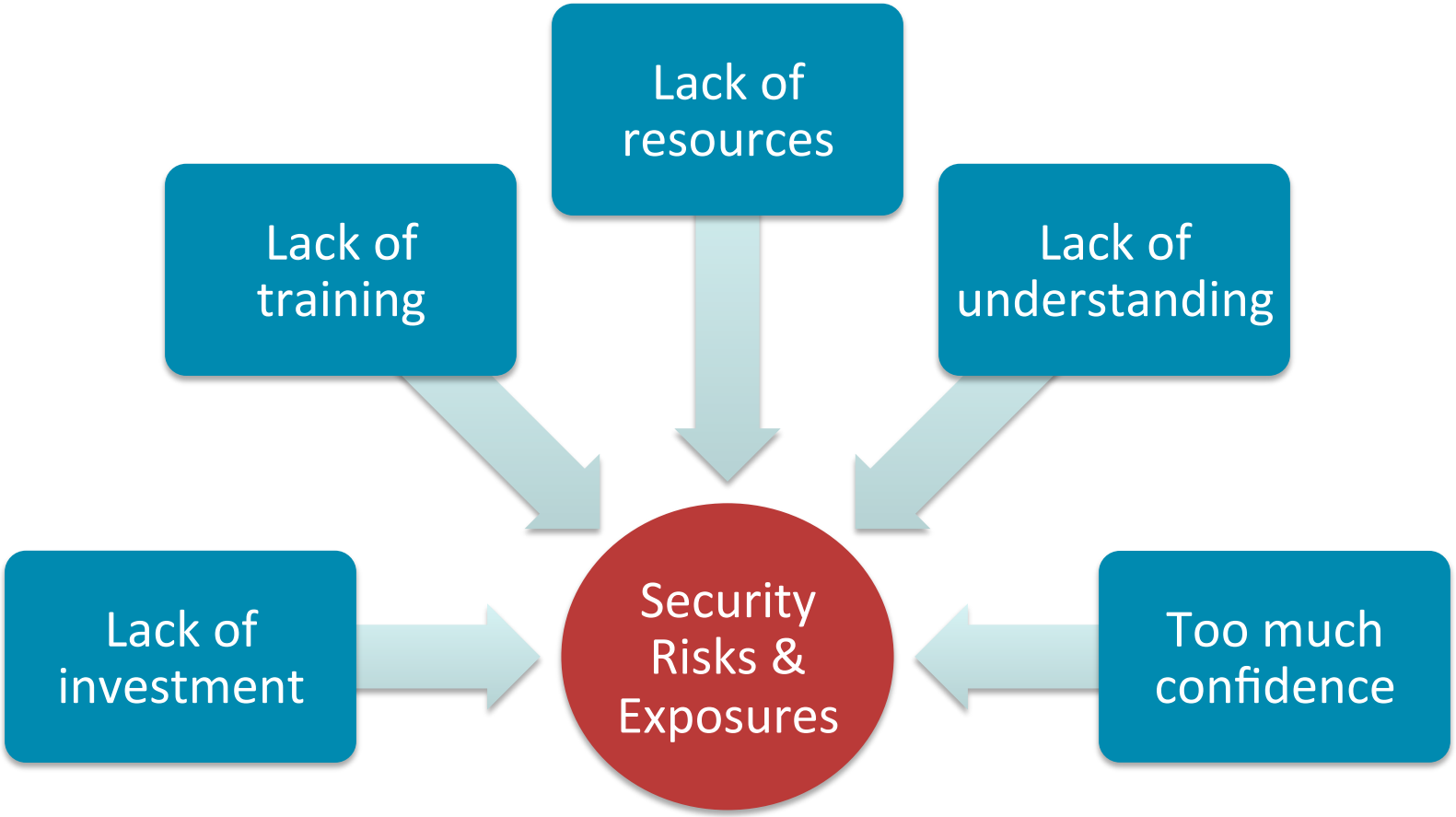
Myth #2 – Some Facts

- Guess what? The mainframe can be hacked!
  - Cyber attack on up to 100 banks - estimated $1bn (£648m) in losses (2015)
  - Swedish Nordea bank – personal data, money (2013)
  - IT firm Logica – more than 10,000 social security numbers (2012)

Myth #2 – Some Facts

- Have you considered the ‘inside threat’?
  - Recent case in the UK
  - Senior Applications developer
  - Detailed knowledge of the application
  - Exploited a known security control
  - Defrauded his employer of over £2,000,000!

Myth #2 – Leads to Risks



Myth #3
The mainframe is isolated from the rest of the world

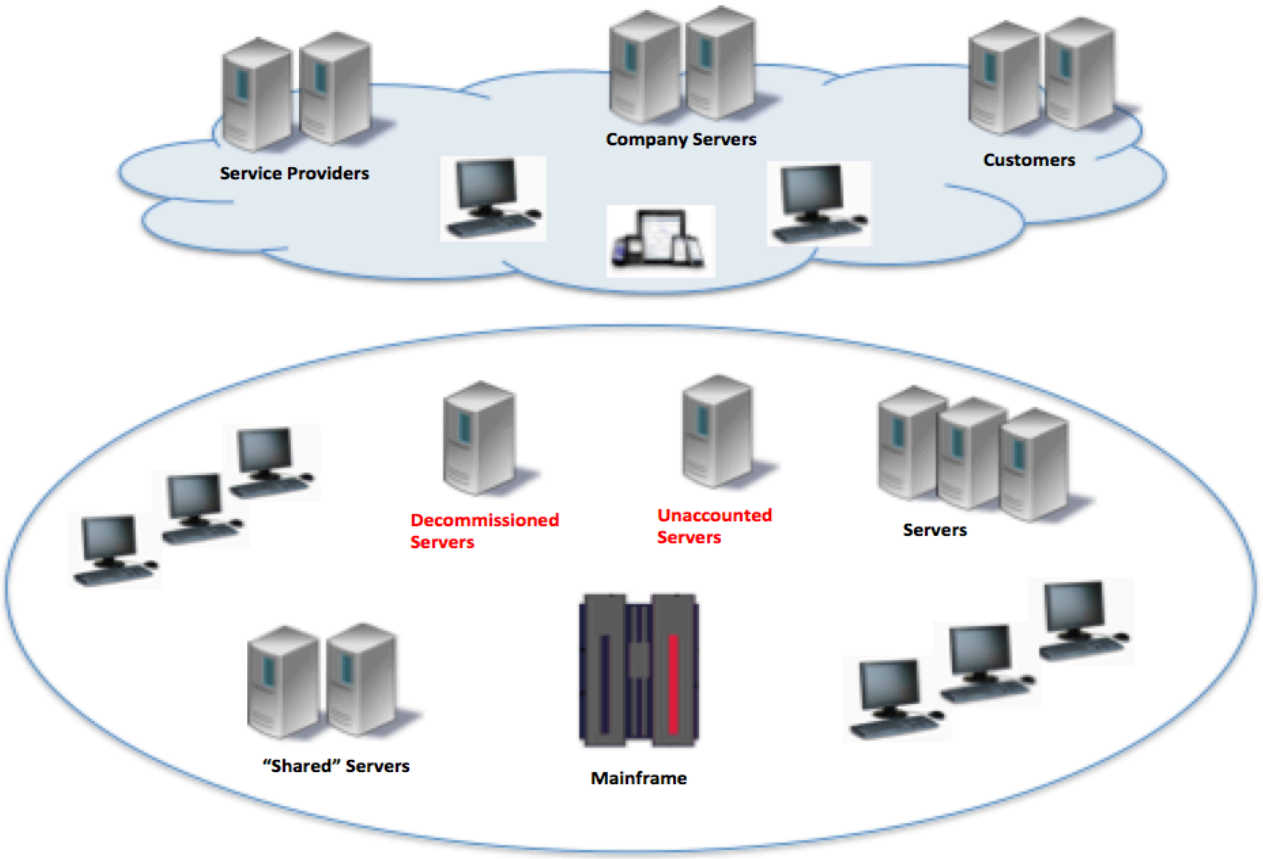
Myth #3

- There is still this idea that the mainframe is independent of everything else.

- In a meeting discussing security aspects with a director of the company we've mentioned their mainframe. His reaction was:
  - "Mainframe? What mainframe?"

Myth #3 – Some Facts

Guess what? The mainframe is only a piece of the big picture!



Myth #3 – Leads to Risks

- The mainframe is not isolated!
  - Hackers can target the mainframe directly
  - Hackers can target other devices in the network to get to the mainframe
  - Beware of IoT and BYOD

- If you don't know you have a mainframe then you have a BIG problem!!

Myth #4
“We don’t use Unix System Services”

Myth #4

- Again, and again we hear clients saying:
  - “We don’t use Unix System Services”
  - “We don’t need to know Unix System Services”
  - “We don’t need to deal with Unix System Services”
  - “I’m a mainframer! I only deal with MVS!”

Myth #4 – Some Facts

- Unix System Services is part of z/OS whether you like it or not
- You may not know Unix System Services but you need Unix System Services!

Myth #4 – Some Facts

- Unix System Services (USS) is used by:
  - TCP/IP
  - DB2
  - CICS
  - IMS
  - Websphere MQ
  - Oracle Web Server
  - …

- There's no point in ignoring Unix System Services!!

Myth #4 – Leads to Risks

- Ignoring USS doesn’t it make it go away
- If not properly dealt with USS can be a major security risk
- Hackers have a deep understanding of Unix. Where do you think they will start at when trying to hack the mainframe?

Myth #5
Outsourcing will solve all the problems

Myth #5

- Companies see outsourcing as a way to save money
- On the other hand outsourcers want to make money
- Can you see a problem here?

Myth #5 – Some Facts

- ‘Blinded’ with the idea of saving money most of the time a company:
  - Assumes everything will be covered by the outsource
  - Doesn’t read the the documentation provided
  - Does not review their own documents (processes, procedures, etc)
  - Does not ask pertaining questions
  - Fails to assume responsibility (IT infrastructure has a direct impact in the business)

Myth #5 – Some Facts

- Most of the times the outsourcer will:
  - Provide technical and non-technical documentation constructed with a greater emphasis in legal terms
  - Technical documentation does not describe how things are done (processes and procedures)
  - Allocate the same technical resource to more than one client
  - Charge for every piece of work not covered by the agreement (remember the lack of processes?)

Myth #5 – Leads to Risks

- In order to make money the outsourcer will:
  - Save money on training
  - Save money on the technical team:
    - Technical resources shared amongst different clients
    - Reduce the number of technical individuals
    - Replace experienced members by cheaper inexperienced personnel
  - Only cover the minimum contracted services
  - Charge for any extra service including security

Myth #5 – Leads to Risks

- The company itself still wanting to save money:
  - Will only address and pay for what is really required – typically audit findings
  - Will not review processes (internal and from the outsourcer)
  - Will not review reports with the attention they deserve (e.g. monitoring, alerting, access)
  - Risk wise – “We have a mainframe. No one hacks the mainframe.”

Conclusion

Conclusion

- The mainframe is going nowhere!
- The mainframe can and has already been hacked!!
- The mainframe is just another platform of the company's ecosystem.
- Unix System Services is part and in use by the mainframe. Get used to it!!
- Outsourcing can be helpful but beware of the pitfalls!

Questions

RSM PARTNERS
SPECIALISTS

References & Sources

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- Wikipedia - http://en.wikipedia.org
- Microfocus - http://online.microfocus.com/
- My own blog – http://www.ruifeio.com/

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