

Migration Audit – Importance & Relevance

August 24, 2013



Shailendra Kothavale



Name

Company & Industry

Expectations from session

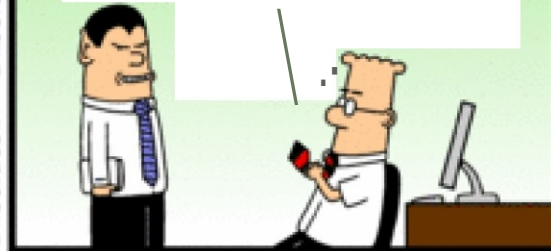
FORWARD THE PREVENTER
OF INFORMATION
SERVICES

IT'S TIME FOR YOUR
OPERATING SYSTEM
UPGRADE.



Dilbert.com DilbertCartoonist@gmail.com

PLEASE DON'T! MY
CMS SOFTWARE WON'T
WORK WITH THE NEW
OPERATING SYSTEM.
I'LL BE A TECHNOLOGY
HAVE-NOT!



5-17-10 © 2010 Scott Adams, Inc./Dist. by UFS, Inc.

IT'S NEVER GOOD
WHEN THEY WEAR
COSTUMES TO
COMPLAIN



Agenda

What is Information Security

Current IT environment

What is IT migration

Need for IT migration audit

Audit procedures

Way forward

Agenda

What is Information Security

Current IT environment

What is IT migration

Need for IT migration audit

Audit procedures

Way forward

Information Security Objective

Information security is protecting information and information systems from unauthorized access, use, disclosure, disruption, modification, or destruction

CIA Triad

Confidentiality

Confidentiality relates to the protection of sensitive data from unauthorized use and distribution

Integrity

Integrity relates to maintaining the quality and validity of data

Availability

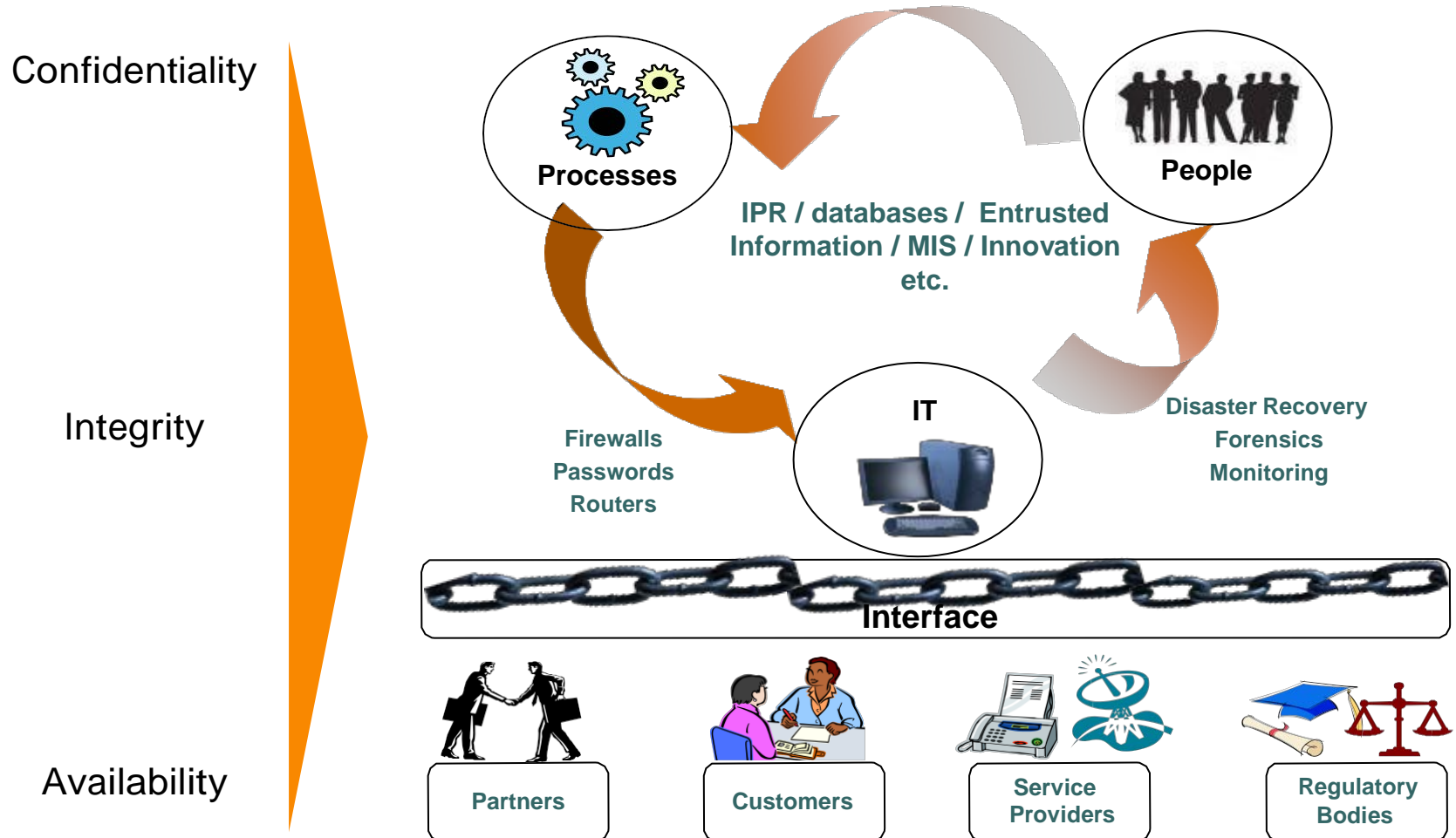
Availability relates to ensuring that data is accessible whenever it is needed

People

Process

Technology

Information security



Each one of them has the potential to become a weak link and jeopardize information security system

Agenda

What is Information Security

Current IT environment

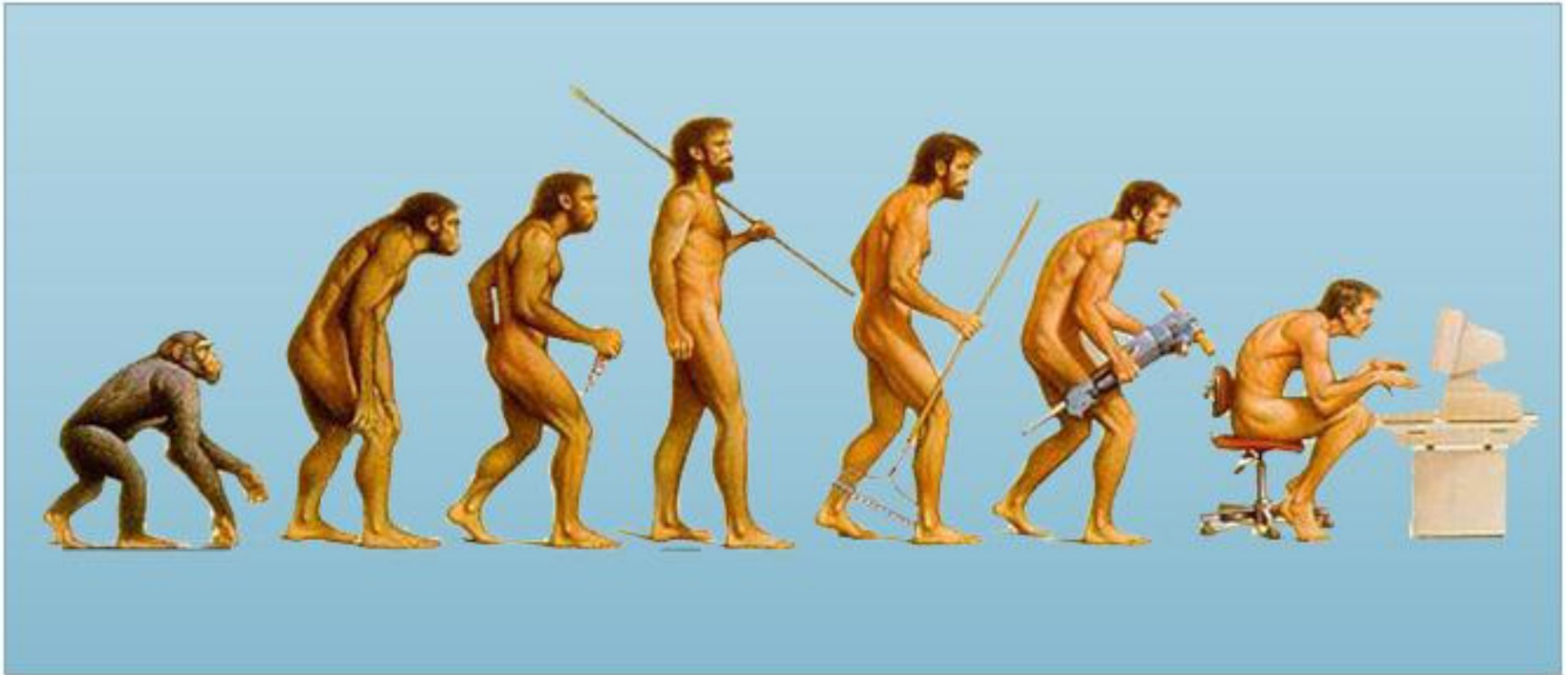
What is IT migration

Need for IT migration audit

Audit procedures

Way forward

Human evolution



Evolution time 6 million years



Mainframe computers (EDP)



Personal computers



Enterprise Resource Planning (ERP)
Integrating systems within the organization
Eliminate redundancy, reduce processing time



On demand business information
Global level integration with different platforms
Online experience



Cloud computing
Mobile computing
Smart software

How much time it will take for next big change in IT?

Multiplicity of platforms



Can strengthen controls but
creates its own set of
complexities ...

Emerging Technology Trends

Cloud Computing



Social Media



Mobile computing & Applications



Big Data

Social Media

Benefits

- Branding
- Customer Service & Feedback
- Reputation Management
- Marketing & Promotion
- Lead Generation

Challenges

- Risk of negative comments
- Fraud
- Quantifying short term ROI

Role of Internal Audit

- Traditional outlook
 - Internet risks faced by any organization revolved around
 - Firewalls
 - Encryption keys
 - Computer security
- Areas to be looked for risks like
 - Reputational
 - Strategic
 - Governance

LinkedIn.
Facebook.

Reference:

Image from www.elliance.com

Mobile Computing & Smart Software

Benefits

- **Reach**
 - Mass coverage to target audience
- **Easy accessibility**
 - Improvements in access to business information from any location
 - Sales force automation applications

Challenges

- **Device Management**
 - Maintain, monitor & manage devices
 - Software / profile updates & backup
- **Security**
 - Device administrative rights
- **Governance / control**
 - Over sensitive business information, applications, risks & audits

Role of Internal Audit

- **Traditional outlook**
 - Physical security
 - Asset hardening
 - Anti-virus
 - Logical access
- **Areas to be looked for**
 - Access to sensitive information
 - Backup of information
 - Encryption
 - Remote deletion of information in case of loss / theft of mobile device

Big Data

Benefits

- **Innovation**
 - Extract insight & knowledge
- **Competitive Advantage**
 - Analytics - Identify trends
 - Having insight of new & emerging data
- **Productivity**
 - Data availability
 - Extensive utilization

Challenges

- **Complex**
 - Complexity in unstructured formats
- **What to capture?**
 - Ability to capture most important data
 - Access to right people in right time
- **Storage & Analysis**
 - How to store data given the size and computational capacity

Role of Internal Audit

- **Traditional outlook towards Database**
 - Logical access
 - Backup

- **Areas to be looked for**
 - Data integrity
 - User access to limited sets of universe
 - IT strategy on capacity management
 - Availability



Cloud Computing

Benefits

- Cost containment (Game co. e.g.)
- Scalability
- Availability
- Efficiency
- Resilience

Challenges

- Transparency
- Privacy
- Compliance
- Trans-border Information flow
- Certification
- Business Continuity

Role of Internal Audit

- Traditional outlook
 - Access control
 - Change management
 - Penetration Testing
 - Physical Data Centre checks
- Areas to be looked for
 - Regulatory compliance
 - Data ownership
 - Data segregation
 - Long-term viability
 - Service reliability & disruptions
 - Investigative support

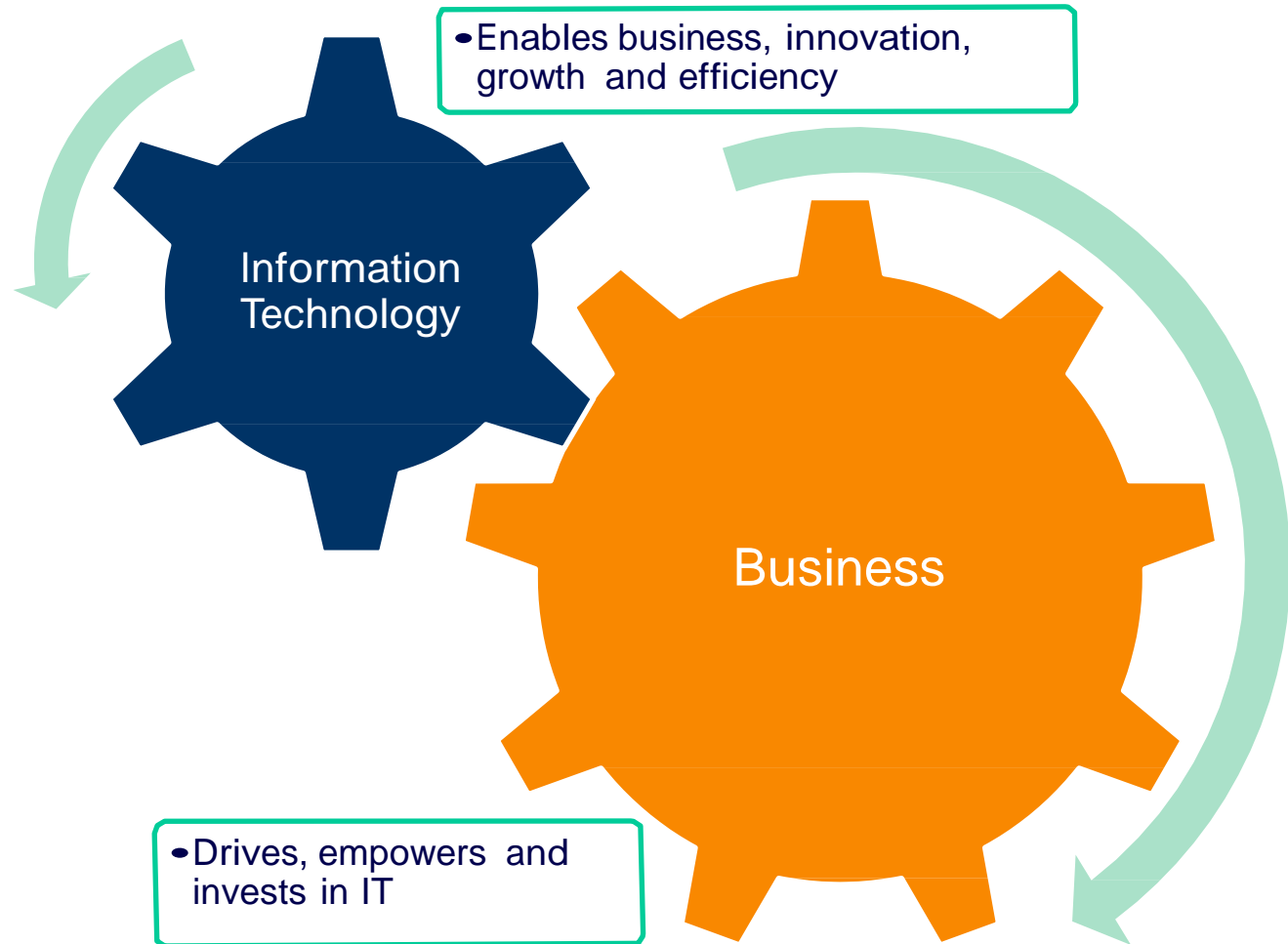


OWASP Top 10 Risks

Open Web Application Security Project

1. SQL Injection
2. Broken Authentication and Session Management
3. Cross Site Scripting
4. Insecure Direct Object References
5. Security Misconfiguration
6. Sensitive Data exposure
7. Missing function level access control
8. Cross Site Request Forgery
9. Using components with known vulnerabilities
10. Unvalidated redirects and forwards

Business and Information Technology strategy are integrated



Agenda

What is Information Security

Current IT environment

What is IT migration

Need for IT migration audit

Audit procedures

Way forward

Migration - Definition

- Migration - process of moving IT Assets from one operating environment to another
- IT Assets
 - Hardware
 - Software
 - Data
 - People
 - Processes

Types

- Types of migration
 - Application (ERP, Email, CRM, Web applications) – legacy to new-breed applications
 - Database
 - Hardware – servers, network devices
 - Operating system
 - Infrastructure viz. Data centre
 - Service Provider Migration
 - Cloud

Agenda

What is Information Security

Current IT environment

What is IT migration

Need for IT migration audit

Audit procedures

Way forward

Need for IT Migration

- Changes/ Upgrade made to computer systems or when systems are merge
- End of life servers or damaged hardware
- Technological innovations – adaptable systems; faster processing; increased agility
- Address security vulnerabilities and threats developed in existing IT infrastructure or emerging risks
- Strategic requirements – explore new opportunities; reduction in overall cost

Challenges of IT migration

- Project Management - Poor planning
- Team dynamics; ownership
- CHANGE MANAGEMENT
- Prioritisation – Day 1 & 2 defining
- Inconsistent Coexistence Strategy
- Inadequate Data Protection
- Management update
- User involvement and testing
- Domain knowledge
- Lack of periodic control testing

Challenges of IT migration

- Integrity
 - Identify errors
- Control adequacy
 - Framework – project documentation, team responsibilities, back up plans, vendor support, test documentation, SDLC, UAT, Management review
- Business continuity
- Effectiveness
 - Budgets (ROI), Schedule, Selection of vendor, end-user feedback, data integrity

Agenda

What is Information Security

Current IT environment

What is IT migration

Need for IT migration audit

Audit procedures

Way forward

Procedure

Pre and post migration audit

Pre-migration

- g) Infrastructure review
- Migration scripts
- Load/ Stress/
Performance tests
- Compatibility checks
(App with OS,
Database & hardware)
- g) Business continuity
- Legal aspects

Migration

- g) Backup
- Data sanitization
- Activity monitoring as
against plan
- Data integrity checks
- End user sign-off

Post-migration

- Data integrity
- Log analysis
- Performance
monitoring

Agenda

What is Information Security

Current IT environment

What is IT migration

Need for IT migration audit

Audit procedures

Way forward

IT Audit Framework

- Traditionally focus has been on checklist based auditing
- Focus on application testing or relevant processes instead of the overall IT environment/ IT Governance
- IT Audit might not be aligned to organization strategy
- IT audit now includes following aspects:
 - Penetration testing/ Ethical hacking
 - OWASP Top 10 risks
 - ISO 27001
 - ISACA standards on IT auditing

Regulations

- IT Act 2000, as amended in 2008
 - Data protection
 - Audit of digital documents
 - Security procedures and practices
 - Data authentication
 - Data privacy
- IT Rules 2011
 - Sensitive personal data or information
 - Requirements for establishing “Reasonable security practices and procedures” (such as ISO/IEC 27001 standard)

Role in Proactive Risk Management

Can Internal Audit identify the sleeping crocodiles?



Conclusion

- IT Audit will need to evolve as follows:
 - Stay abreast of the ever-changing IT environment
 - Look at the big picture - align with the organisation's mission, vision, values, objectives and strategies
 - Perform integrated audits involving both technological controls and functional checks
 - Assess the adequacy of overall governance activities:
 - Perform separate audits of IT governance as a whole, or
 - Perform audits of selected IT governance activities (those considered to represent higher risks)





Thank you