MTAT.08.021
Systems Administration

L11: Disaster Planning, Documentation

Lecture
2011-05-05
Disaster Planning

input
• risk analysis
• financial and maintenance options

output
• disaster-specific scenarios (*katastroofikesksed stsenaariumid*)
• system-specific scenarios (*süsteemikesksed stsenaariumid*)
• generic instructions for unforeseen disasters
Recovery Plan

- what is considered a disaster?
- who can declare a disaster and start the disaster plan?
- roles and responsibilities
- database of recovery resources
  - facilities, hardware, software, data
- when will we return to routine operations?
Recovery Options

set of commonly used recovery options

- Do Nothing (*ei taasta midagi*)
- Manual Workaround (*ajutine lahendus*)
- Reciprocal Agreement (*vastastikune hädaabi*)
- Cold Stand-by, Gradual Recovery (*külmad varud, reserv*)
- Warm Stand-by, Intermediate Recovery (*soojad varud, töövalmis reserv*)
- Hot Stand-by, Immediate Recovery (*kuumad varud, töötav reserv*)
Recovery Options

Do Nothing

- service provider agrees with the customer that the service recovery will not be performed

Manual Workaround

- manual intervention needed
- usually temporary
- some parts of business may operate without using IT services
Recovery Options

Cold Stand-by, Gradual Recovery

- recovery facilities with network, power, cooling
- no hardware or software, these must be set up
- recovery time > 72h
Recovery Options

Warm Stand-by, Intermediate Recovery

- recovery facilities with needed infrastructure
- includes spare hardware and software
- hardware and software must be configured and the data must be restored
- recovery time 24-72h
Recovery Options

Hot Stand-by, Immediate Recovery

- identical system working in parallel, already configured
- may use real-time replication
- recovery time $< 2h$, if the data is replicated in real time
- recovery time $< 24h$, if the data must be restored
Exercise

- Form teams
- Figure out and describe with the terms learned, what just went wrong with Amazon
- Approx 10-15 minutes, 10 minutes discussion
Experience Report 1

• A system administrator’s check list
Experience Report 2

• Graylisting for spam prevention
The Documentation process aims to gather information about systems while keeping it accurate and current and providing the system administrators and users with easy and fast access to this information.
Documentation

- gathering
- information
- (re)organizing
- re-arranging
- presenting

Document repository
What to document?

- information about the system
  - components, structure, dependencies
- information related to the system
  - user manuals, persons, responsibilities, permissions
- factual & pragmatic

Document complicated and unpleasant procedures first!
When to document?

Planning
Risk Management
Testing
Implementing
Operations

Documenting
When to document?

document as instantly as possible
- ...while the details are still fresh
- what you'll remember few days later probably does not need to be written down anyway

include documenting in procedures
- no need to have “dedicated” documenting process
Why to document?

- easy delegation
- fast solutions to recurring incidents
- easier for new hires
- more efficient help desk
- documentation is a part of the disaster plan
- easier to audit
Why to document?

Proper documentation saves an order of magnitude more time and resources than it took to create the documentation.
Retrospect: fundamentals

Skills, knowledge

Knowledge management

Configuration management

Documented procedures

Clear overview

Direct control over the components

Vision, planning

Configuration management

Knowledge management

Skills, knowledge

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University of Tartu

Systems Administration
http://sysadmin.ulno.net
Documentation: scope

- ideally, the whole system is covered
- try to cover critical (sub)systems first
- try to compensate for the inadequate components of the existing documentation first
- too wide scope is impractical, as is too narrow
Documentation: detail

ideally, the documentation is detailed enough to re-build the system from scratch

too much detail
  - takes time to create
  - takes time to search through
  - takes time to change

too little detail
  - reader is expected to fill in the details
  - ...this takes time :(

Documentation: tools and methods

- collecting and re-structuring existing documentation
  - including the documentation shipped with hardware and software
- writing new documentation items
  - documenting the system administration procedures
  - writing user guides
Documentation: tools and methods

communication
- e-mail messages (incl. sent e-mails!)
- instant messaging

automated documenting
- monitoring systems, logs
- configuration management software
- system management software
Documentation: formats

do not underestimate the importance of format

• searchable?
• universal?
• recyclable?
• usable under limited conditions (text terminals, mobile devices, print-outs)?
Simplifying the process

we all know about the importance of documenting – but...

use existing sources
automate!
Existing sources

messaging
  - e-mail
  - IM

command line history
  - store and re-format
  - good base for automation

incident tickets
  - both for history and recurring incidents
Automated documenting

a lot of data needed for documentation already exists in the system, we just need to collect, process and represent
Automated documenting

- Configuration Management Process
- logs, log analyzers
- command line history
- event audit
- network scanners
- monitoring software
- system management software
Automated documenting sources

common, widely used sources

- name service data (DNS zones)
- DHCP configuration and lease database
- inventory/asset database
- workstation event logs
- workstation software management database
Automated documenting sources

additional sources (if available):

- configuration management database (CMDB)
- system management software
- security management software
- identity management software
- network management and monitoring software
Knowledge Management includes

- internal training
- meetings
- team work
- junior and senior specialists
- working in pairs

documenting is a sub-process of Knowledge Management