MTAT.08.021
Systems Administration

L8: Change Management, Remote Support

Lecture
2011-04-21
Change Management
(Muudatusehaldus)

objective of the change management process is to ensure that changes are made to the system using efficient, standardized procedures and to minimize the impact upon service quality
Change Management

Planning
Risk Management
Testing
Implementing
Post-Event Analysis
Change Management

- Planning
- Risk Management
- Testing
- Implementing
- Operations
Planning

process of thinking about how to achieve goals

or

the formal process of creating and maintaining a plan
Planning

planning is one of the fundamental properties of intelligent behaviour
Planning

I. determine: current state, problems, facilities, goals

II. consider the steps towards the goal, compile a plan

III. execute the plan, review
Planning

I. determine:
   - current state
   - problems
   - facilities
   - goals

III. execute the plan
   - review
Planning

I. determine: current state problems facilities goals

III. execute the plan review

cancrete, atomic task
Planning

good goals and sub-goals:

concrete, specific
measurable
acceptable
realistic
Planning

• plans must be in accordance with the goals of the organisation (systems, users)
• it is much easier to plan when the organisation has well-defined goals
Planning

- backup plan, plan B
- back-out plan
Planning

• under-planning
  - goals are not clear, specific
  - incomplete overview of the current state

• result
  - unexpected events during the implementation
  - we're there! where?!
Planning

• over-planning
  - meticulous goals
  - too much detail in description of current state

• result
  - the process will be too time-consuming and labour-intensive in relation to the expected results
  - the target is reached later or not at all
  - difficult to change the plan
## Planning: new vs. old

### implementing a new system
- more relaxed schedule
- smaller impact on running systems
- more uncertainties
- more labour
- more costly

### changing the old system
- very strict schedule
- high risk
- system is already fairly known to us
- less labour
- less costly
Planning: new vs. old

implementing a new system

- feed-back is important in the early stages
  - plan the communication
- need for flexible schedule
- expect the unexpected
- set mile-stones

changing the old system

- mitigate the risks
  - backup
  - back-out plan
- have precise schedule
  - realistic estimates!
- communicate!
Tools for Planning

• depending on the level or domain
  - physical diagrams
  - logical diagrams
  - dependency graphs
  - decision graphs
    - time-lines
Output of Planning

- clear, specific goals
- overview of the facilities
- overview of the possible problems
- plan: list of consecutive steps to move towards goal
- criteria, upon which to review the execution
- criteria, upon which to assess whether the goal is achieved
Risk Management

Risk Management is the process of identifying, assessing and prioritizing the risks with the intention to mitigate them.
Risk Management

does the change meet a business need?
when should the change be implemented?
how to test for the success?
how to back out of the change?
when to back out?
how to minimize negative impact of the change?
Testing

Testing is the process of validating and verifying that the system meets our requirements (functionality, performance, etc).
Testing

borrowed from software engineering:

- system test
- black box testing
- validation
- white box testing
- regression testing
- verification
Testing

black box
- specification testing
- fictive users

white box
- static testing
- fictive modules
Testing

testing in Change Management process

regular testing in Monitoring process
Performance Testing

- simulating the every-day load
  - record & replay
  - “artificial” load
- measuring load is a complicated task
- goals
  - measuring the impacts of changes
  - locating bottlenecks
  - future prognosis
Test Plan

• consists of:
  - test input
  - test steps/stages (sometimes scenario)
  - expected output
    • functional
    • non-functional (performance)
  - actual output
  - tester's remarks, observations
Testing & Security

- system may have unwanted functionality
- black or white box?
- specified unwanted functionality
  - design- and configuration flaws
- non-specified unwanted functionality
  - programming errors
Implementing the change is based on the output of planning, testing and risk management.

The goal is to execute the change plan, following it precisely, while supporting the whole process with communication.
Communicating the Change

• communicating within the team
  – implementers must have consensus
  – “outsiders” must keep an eye on their systems

• inform the customers
  – what is being done?
  – who is responsible?
  – who will be affected, and how?
  – where to get extra information?

• do not over-communicate
Scheduling the Change

- routine change
  - invisible to user base
  - no need to schedule (but do not get carried away)

- major change
  - will affect many systems or users, outages
  - off-peak (off-work) times, maintenance windows

- sensitive change
  - could cause outage when something goes wrong
  - off-peak
“the Real Deal”

• after all this planning, testing, communicating, changing, etc. -- you must implement the actual change!
• have plans ready
  – change plan
  – back-out plan
  – plan B?
• keep an eye on the schedule
• do not hesitate to back out when the plan says so
Organizational Measures

- non-technical, but essential part of the change
- system and actual business processes have to be in alignment
  - change the system
  - change the business processes
- some people's duties will change
- use training before and after the change
  - normal working order must be restored ASAP
  - untrained staff will resist changes
Post-Event ...

- review
  - did we meet the goals?
  - how to perform better next time?
- system is in working order
- system is compliant with organizational rules & regulations & business processes
- operations phase will take over
  - maintenance and monitoring
  - incident and problem management
Activity

• You are a group of system administrators for a small company with 200 employees.
• As the company wants to support home office work and wants to cut budget on local hardware and their maintenance they open the strategy to move all their services to the cloud
• Select a domain, describe, and plan the change management for this company. Compile 1-2 pages of keywords for describing the plan. Submit the plan to the discussion board.
• Two random groups will present.
Remote Support

• vnc
  - server (x11vnc)
  - client
• screen
• tunneling these