Continuous Service Improvement at CERN IT

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IT-PES

Background

- IT-PES group at CERN
  - grid services, engineering software, general physics computing services (SVN, git, LXPLUS, batch), Twiki
- Based this experience, the work could be applied to other groups

- ITIL best practices introduced at CERN in 2010
  - And related SNOW framework, Feb 2011

Motivation

- Need to rethink support model:
  - volume of tickets (~90 per week)
  - Interruption caused by routine tasks
- ITIL introduced at CERN IT
- Tool was changed, from Remedy to SNOW
  - Opportunity to change habits
  - To influence tool/processes evolution
  - To develop commonalities across services

Requirements

- Adapt to ITIL oriented processes and tool (SNOW)
- Share experts' knowledge among the team
- Reduce expert/engineer level interventions
  - ensure that other units (IT helpdesk, CERN service desk) are trained and equipped with the means to handle the tickets concerned autonomously
- Reduce ticket solution time
- **In summary: ensure the best possible use of existing people, processes, and tools.**

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What we have done (1)

1st level: Service desk
general purpose, dedicated team
ticket assignment, make sure all needed information is there

2nd level: IT helpdesk
dedicated team (outsourced), below engineer level, different areas of skills, most services go through them

3rd level: service manager rota
1 service manager (engineer level) on duty per week for all services

4th level: experts
engineer level service managers
1-2 per service

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What we have done (2)

- Implement basic problem management flow:
  - monitor recurrent incidents so the root cause is found and fixed
  - with direct feedback to service managers and IT helpdesk about misrouted tickets
  - How?
    - Weekly list of open tickets (~90)
    - Weekly analysis of all of them, F2F short meeting (15 min) with 2nd and 3rd level supporters
    - Resulting tasks assigned to support levels/service teams (tracked in JIRA)
      - E.g. write documentation, provide training, feature request, change request

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Weekly list of tickets

Number	Priority	SLA due	Short Description	Functional Element	Assignment group
Functional Element: BDII (1)					
Functional Element: CVMFS Central Services (9)					
Functional Element: Electronics Design Automation tools (4)					
Functional Element: ELF ms (4)					
Functional Element: JIRA Issue Tracking (4)					
Functional Element: LXADM (1)					
Functional Element: LXBATCH (9)					
Functional Element: LXPLUS (6)					
INC280691	4 - Low	19-04-2013 08:30:00	lxplus cmt/gmake issue	LXPLUS	LXPLUS 2nd Line Support
INC280464	4 - Low	18-04-2013 16:51:56	getpwnam C function crash	LXPLUS	LXPLUS 3rd Line Support
INC276742	4 - Low	12-04-2013 16:54:56	Re: LXplus Network Range	LXPLUS	Service Desk
INC276564	4 - Low	12-04-2013 14:57:59	CellServDB not updated on lxplus	LXPLUS	LXPLUS 3rd Line Support
RQF0213903	6 - Very Low	29-04-2013 10:06:13	Question about the differences between lxplus5 and lxplus6	LXPLUS	LXPLUS 3rd Line Support
INC277375	4 - Low	16-04-2013 09:41:39	lxplus6 has old git	LXPLUS	LXPLUS 3rd Line Support

What we have done (3)

- Metrics: measure and compare service evolution; analyse overtime and act to improve
- KPIs:
  - % tickets going through 1st/2nd level (not assigned directly to rota/experts)
  - % tickets SOLVED by 1st/2nd level
  - Weekly automated report
- In the last 2 years, from 25% till 33% tickets solved by the second level team
  - 2012: 33% of **4274**, 1410
  - 2011: 25% of **3919**, 979
- That makes 431 tickets more

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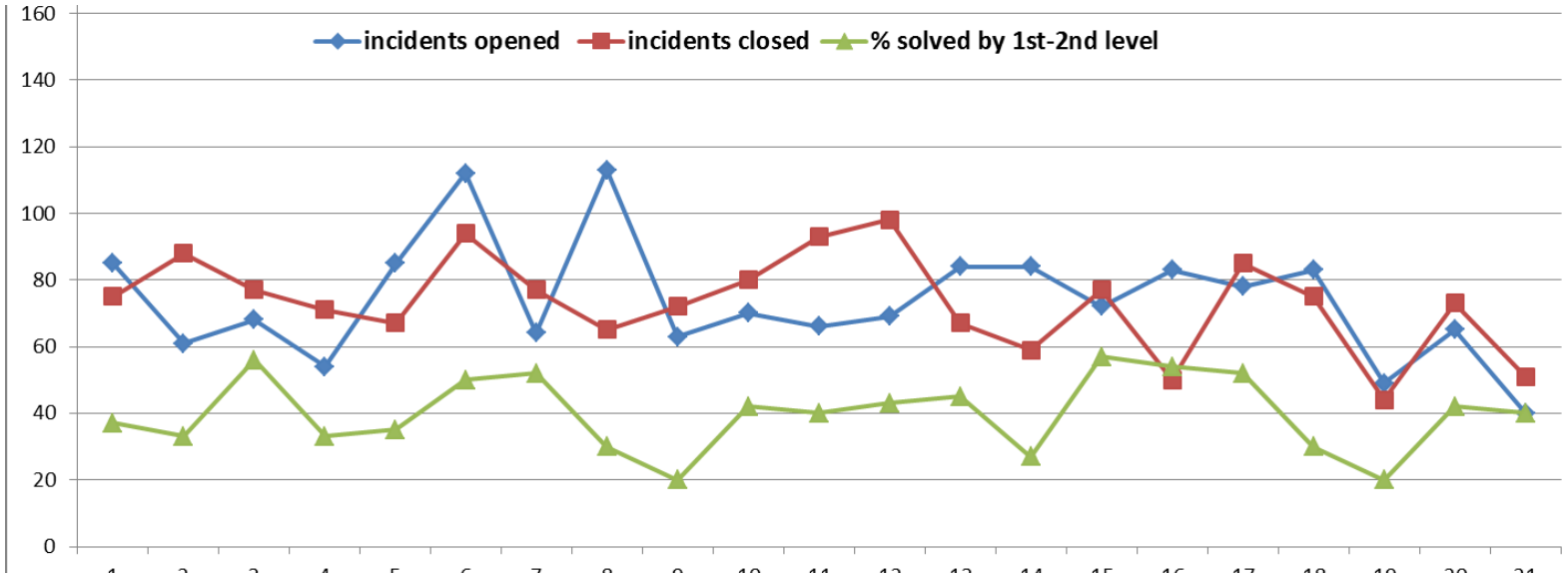
Metrics



Week	Open Tasks (INC/REQ)	Open INC	Open REQ	Closed tasks (INC/REQ)	INC (2nd level=IT helpdesk/solved/SD)	REQ (2nd level=IT helpdesk/solved/SD)
08-Apr-2013	**52** (24/28)	VCS (6), EDA(4), Batch(3)	VCS (7), ELFMs (6)	**65** (35/30)	22/8/5 (%63/36%)	25/15/1 (83%/50%)
01-Apr-2013	**75** (40/25)	VCS (10), Batch (6), Mechan (5)	VCS (13)	**87** (42/45)	25/8/3 (%59/32%)	30/15/0 (66%/50%)
18-Mar-2013	**111** (60/51)	VCS (14), Batch (12), Lxplus (12)	VCS (24)	**67** (30/37)	18/5/1 (%60/28%)	26/12/1 (70%/46%)
11-Mar-2013	**83** (35/48)	Batch(8), VCS (6)	VCS (20)	**75** (33/42)	23/6/1 (%66/26%)	24/16/3 (57%/67%)
04-Mar-2013	**78** (35/43)	VCS (7), Batch (5), EDA (4)	VCS (16)	**85** (46/39)	27/9/0 (59%/33%)	27/11/4 (69%/41%)
25-Feb-2013	**83** (41/42)	EDA (9), VCS (8)	VCS (8), CVMFS (7)	**50** (30/20)	22/6/1 (73%/28%)	18/12/0 (90%/67%)
18-Feb-2013	**72** (40/32)	VCS(9), batch (7), Twiki (5)	VCS (16)	**77** (51/26)	37/20/0 (73%/54%)	16/14/0 (62%/88%)
11-Feb-2013	**84** (58/26)	VCS(11), lxplus (9)	VCS (11)	**59** (32/27)	23/13/1 (72%/57%)	12/8/2 (92%/67%)

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Lessons learnt (1)

- For most services, an intermediate support level makes sense
  - Which does not need to be served by experts
  - Recurrent requests are the typical example
- Monitoring, Automation, and more automation
  - Discovering incidents before they are reported by users, and passing info to 1st/2nd level teams, saves time
  - Provide simple tools to users and 1st/2nd support teams, so they can do themselves the most common queries
    - E.g why is my batch job not running?

Lessons learnt (2)

- ITIL is a (wide) framework:
  - Good to be pragmatic and take what needed, step by step
- Once you choose a support tracking tool
  - it is not worth over customizing
  - In the long term, it is easier to adapt to it and use it as it is

Objectives for the future

- Raise further the quantity and quality of tickets solved by the 2nd level team
- Enlarge the 3rd level rota to cover more and more services
- And challenges: the AI project will bring changes to all services
  - Keep with stable support model
    - Training to supporters
    - Changes in service catalogue

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Summary

- It is useful to stop and rethink basic processes
  - support = incident/request management
  - Not only for big volume of tickets
- Every service has routine tasks and a basic support level where engineer level is not needed
- Essential:
  - Monitoring
  - Automation
  - Metrics