Systems Management with Open Source

Bernd Erk @ Würth Phoenix

Open Source Systems Management Conference 2012

10th of May - Bolzano

NETWAYS®

Introducting NETWAYS

NETWAYS Expertise

OPEN SOURCE SYSTEMS MANAGEMENT

- Monitoring & Reporting
- Configuration Management
- Service Management
- Knowledge Management
- Backup & Recovery

OPEN SOURCE DATA CENTER

- High Availability & Clustering
- Cloud Computing
- Load Balancing
- Virtualization
- Database Management

MANAGED SERVICES | MONITORING HARDWARE | CONFERENCES

NETWAYS Conferences

OPEN SOURCE MONITORING CONFERENCE on Nagios

Open Source Monitoring Conference
17 – 18 October 2012

260 attendees (2011)

Icinga / Nagios case studies & best practices

Latest monitoring technologies & addons

OSDC.de
OPEN SOURCE DATA CENTER CONFERENCE

Open Source Data Center Conference
17 – 18 April 2013

105 attendees (2012)

“Agile Infrastructures”

- Devops & methods
- Databases
- Scalability & infrastructure

Community Involvement

netways.org®

www.netways.org
NETWAYS Addons
NETWAYS Plugins

ICINGA

www.icinga.org
Development
Hosting

Monitoring EXCHANGE

www.monitoringexchange.org
Repository of Icinga / Nagios addons and plugins
~2000 projects

Systems Management

Systems Management

Hardware Management

User Management

Capacity Management

Security Management

Problem Management

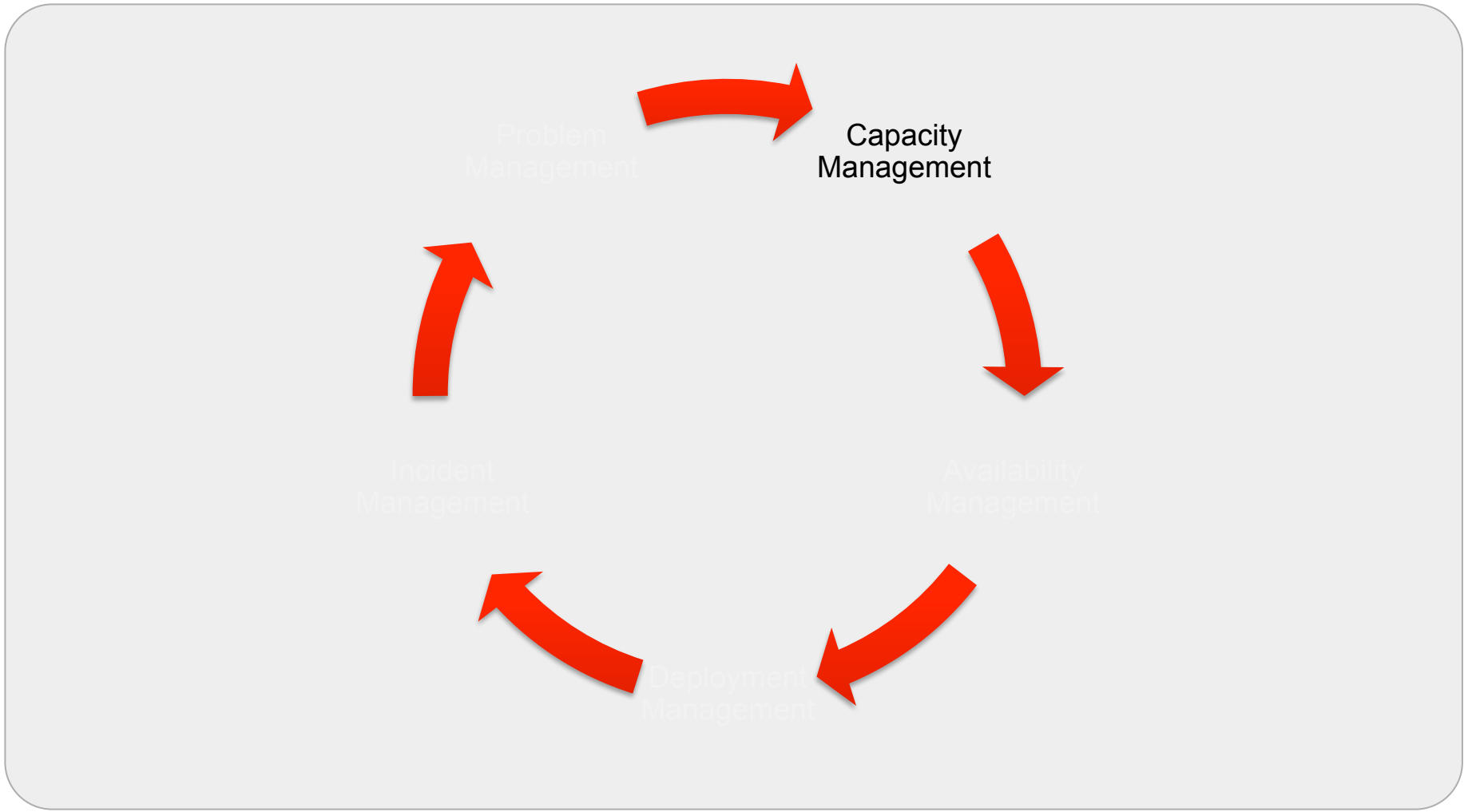
Availability Management

Storage Management

Incident Management

Tools & Processes

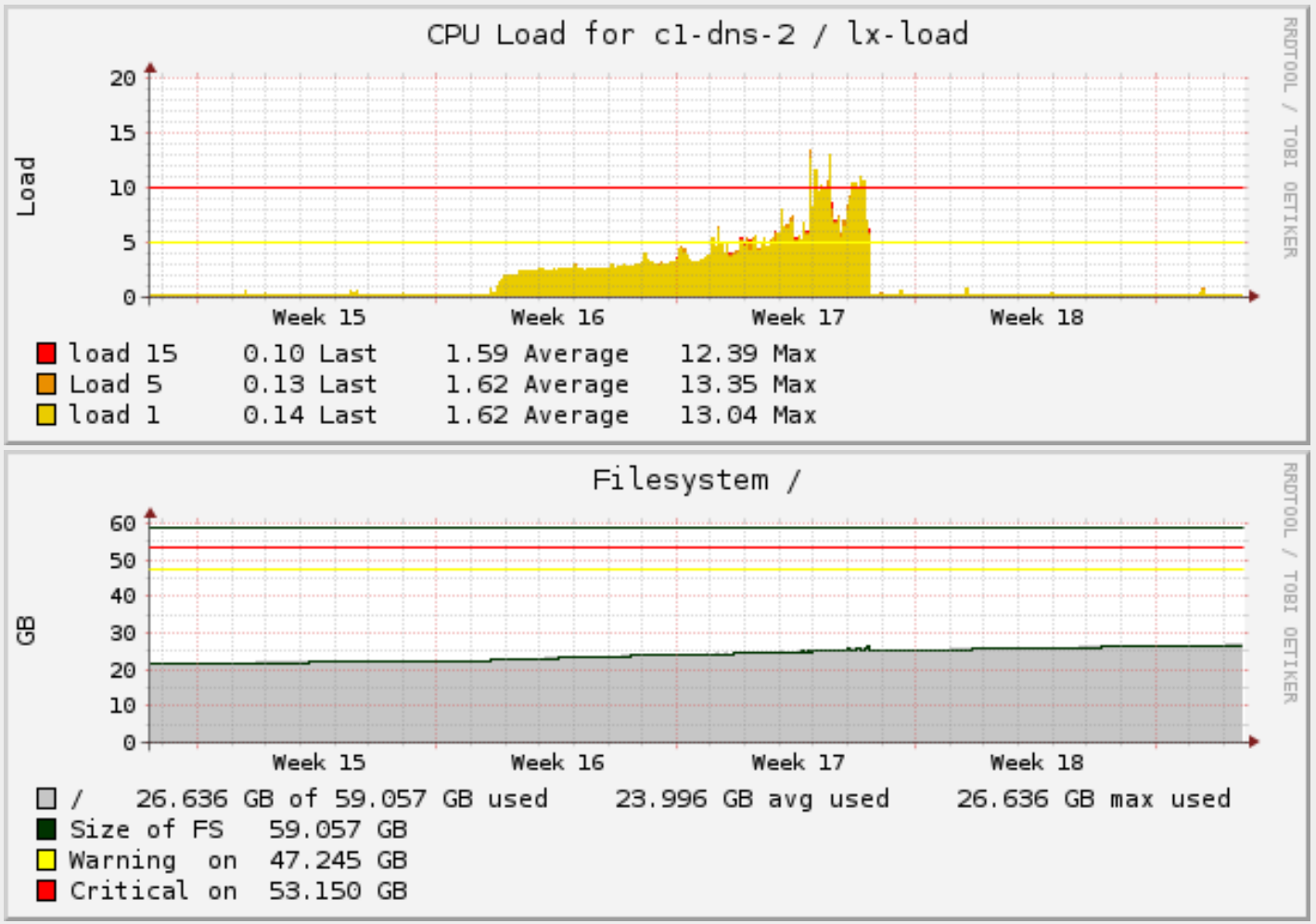
Capacity Management



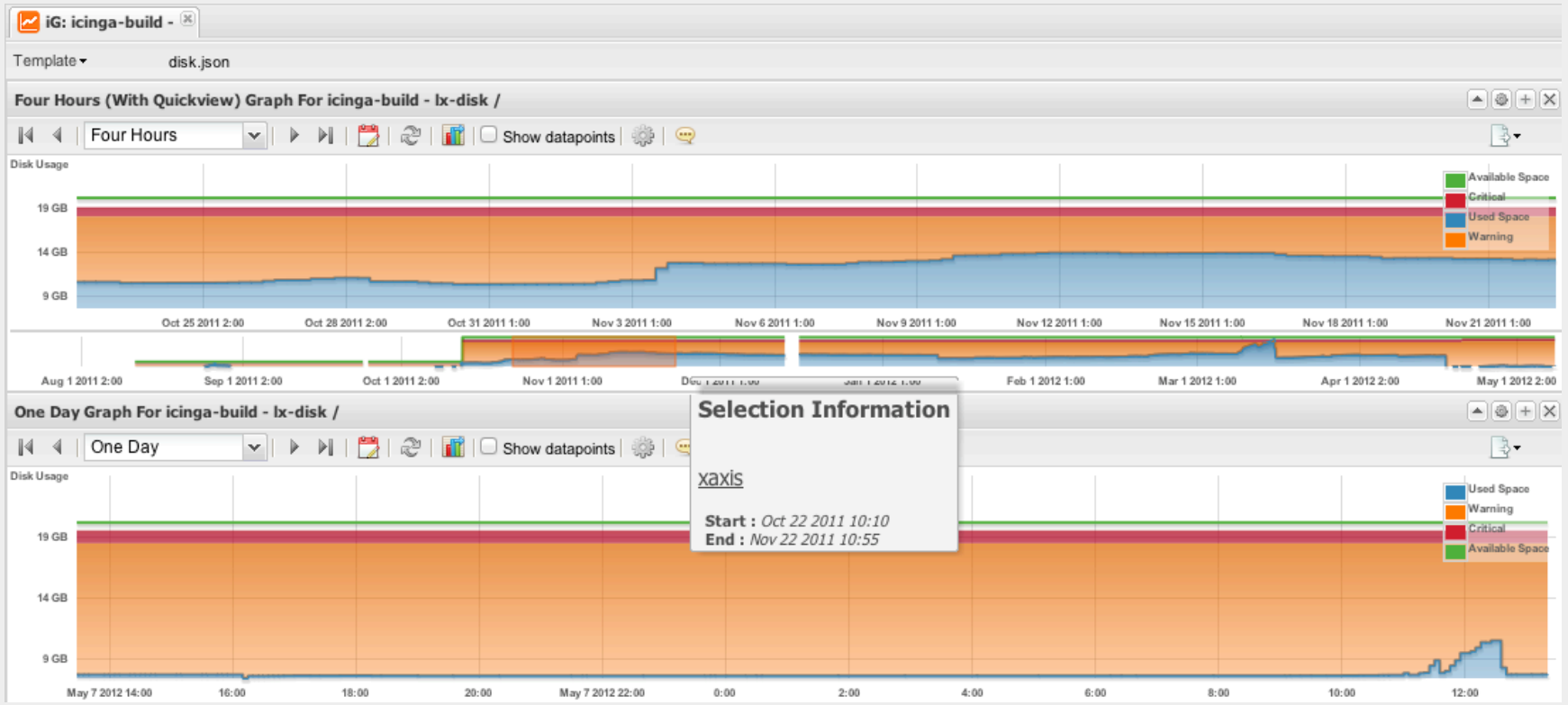
Capacity Management - Tools

- Independent Tools
  - Cacti
  - Munin
  - Graphite
- Nagios/Icinga Addons
  - **PNP4Nagios**
  - **inGraph**

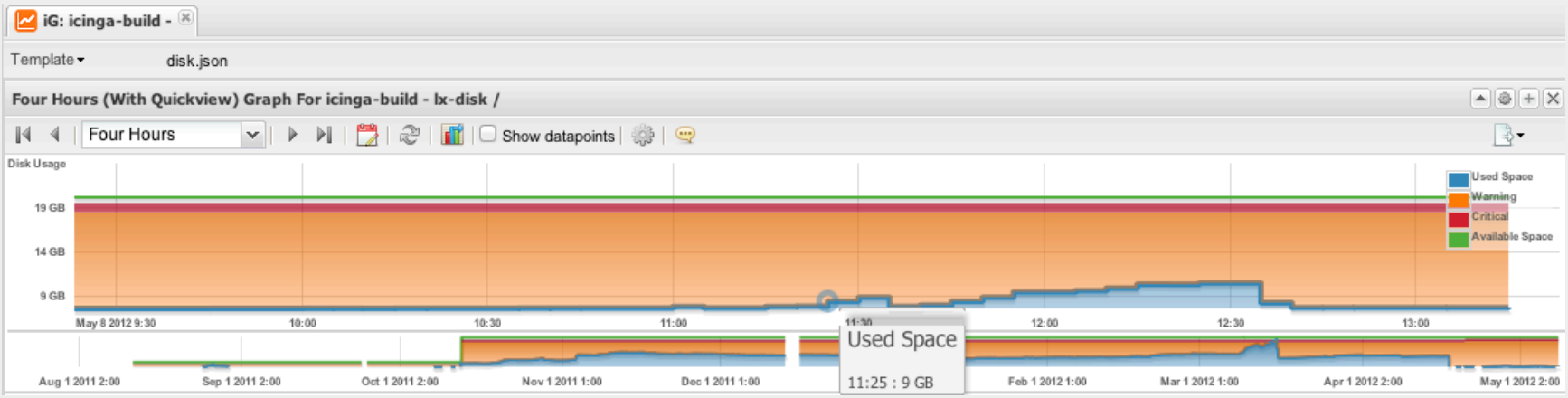
Capacity Management – PNP4Nagios



Capacity Management – inGraph



Capacity Management – inGraph



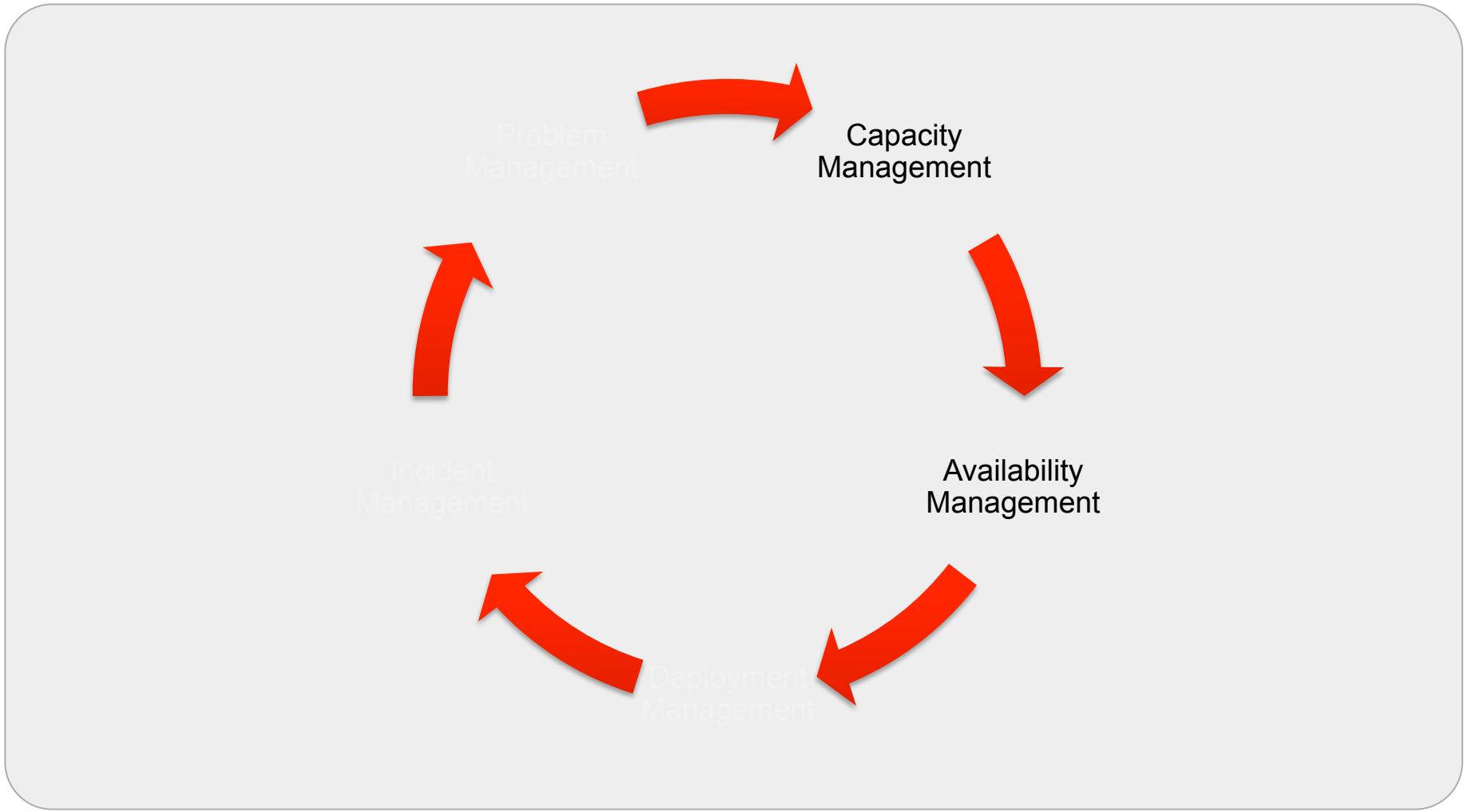
www.netways.org/projects/ingraph

Capacity Management – inGraph

```
check_ingraph -H localhost -S "Current Load"
-P load1 -F average -f -192 -g -168 -s -24 -t 0 -w 10 -c 20
```

www.netways.org/projects/ingraph

Availability Management



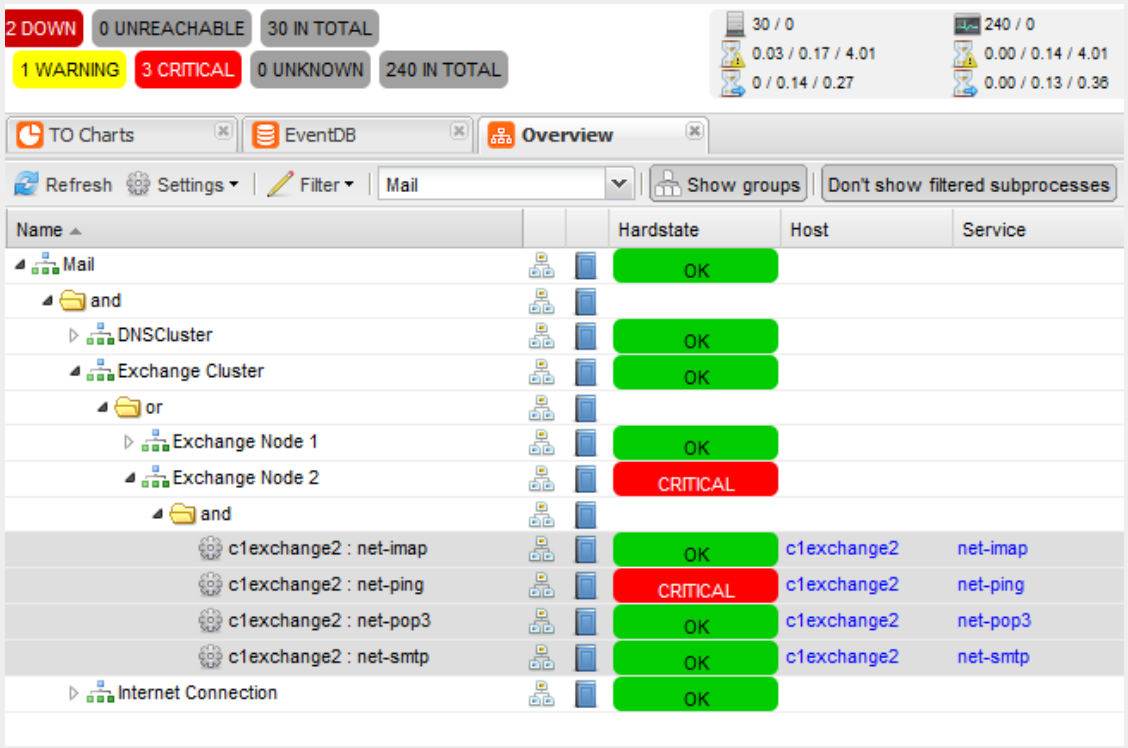
Availability Management - SLA

SMART – Principle

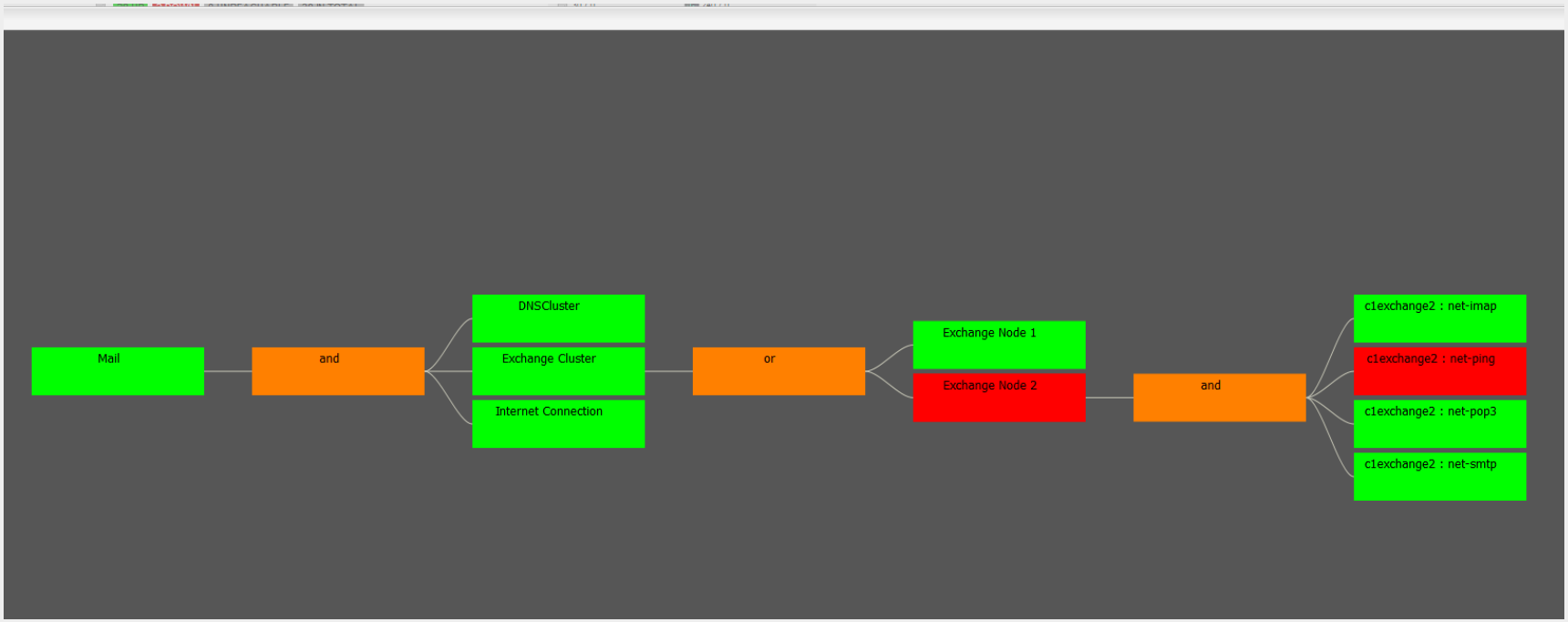
- **S**pecific
- **M**easurable
- **A**chievable
- **R**elevant
- **T**imely

Availability Management - Business Process View

- Aggreation of different hosts and services
- Treeview of all important business processes
- and/or relations
- Drilldown

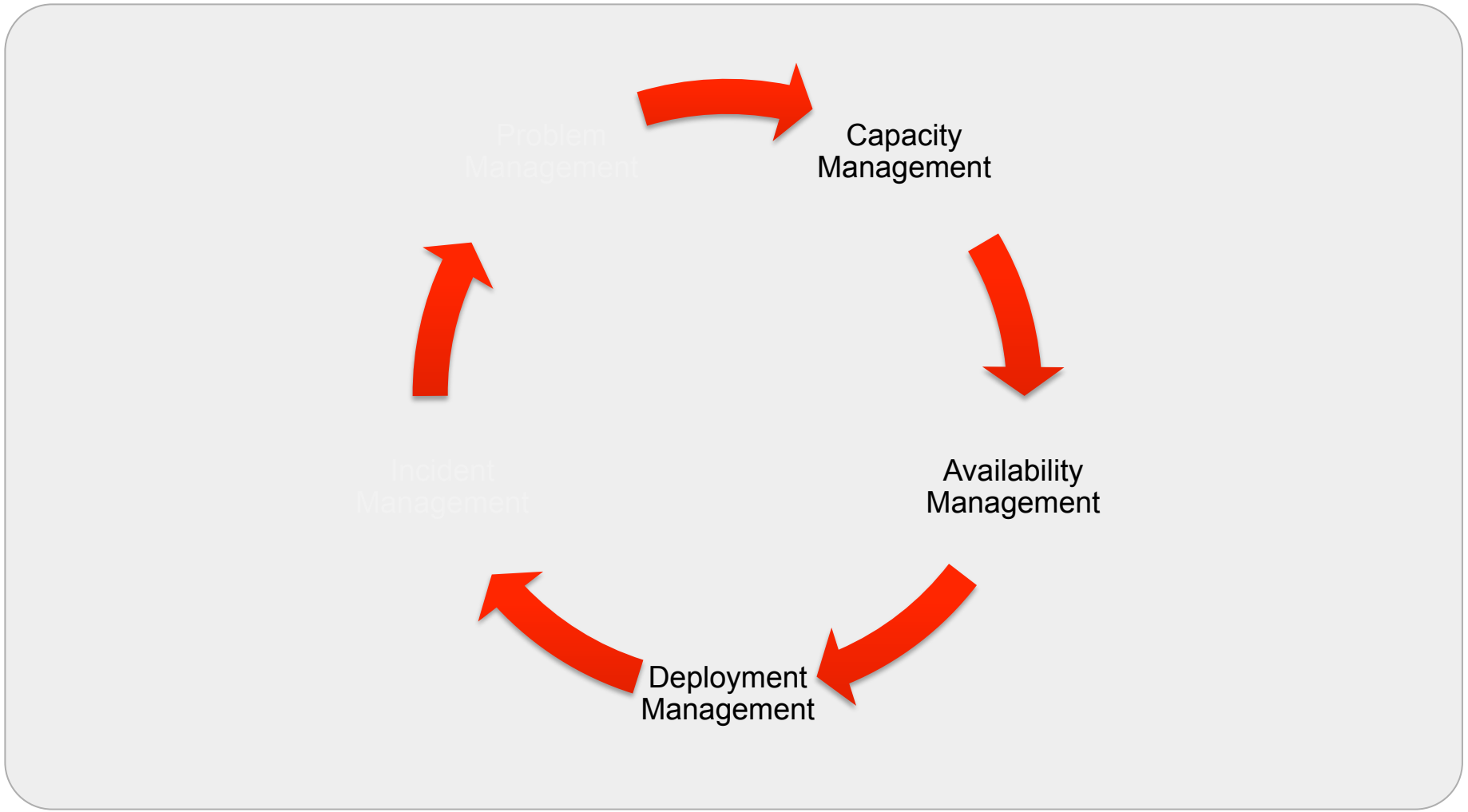


Availability Management – Process Overview



http://bp-addon.monitoringexchange.org/

Deployment Management



Current State of IT Automation

Manually Configure

All-or-nothing Software Packages

hp, bmcsoftware, IBM Tivoli., ca technologies

Golden Images

Custom One-off Scripts

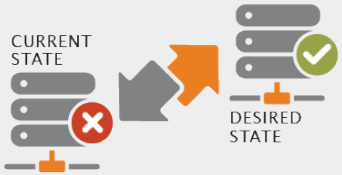
```
for i in $(cat host.cfg)
do
  ssh user@$i uname -a
done
```

Deployment Management - How Puppet Works

1 Define: With Puppet's declarative language you design a graph of relationships between resources within reusable modules. These modules define your infrastructure in its desired state.

4 Report: Puppet Console reports track relationships between components and all changes, allowing you to keep up with security and compliance mandates. And with the open API you can integrate Puppet with third party monitoring tools.

2 Simulate: With this resource graph, Puppet is unique in its ability to simulate deployments, enabling you to test changes without disruption to your infrastructure.

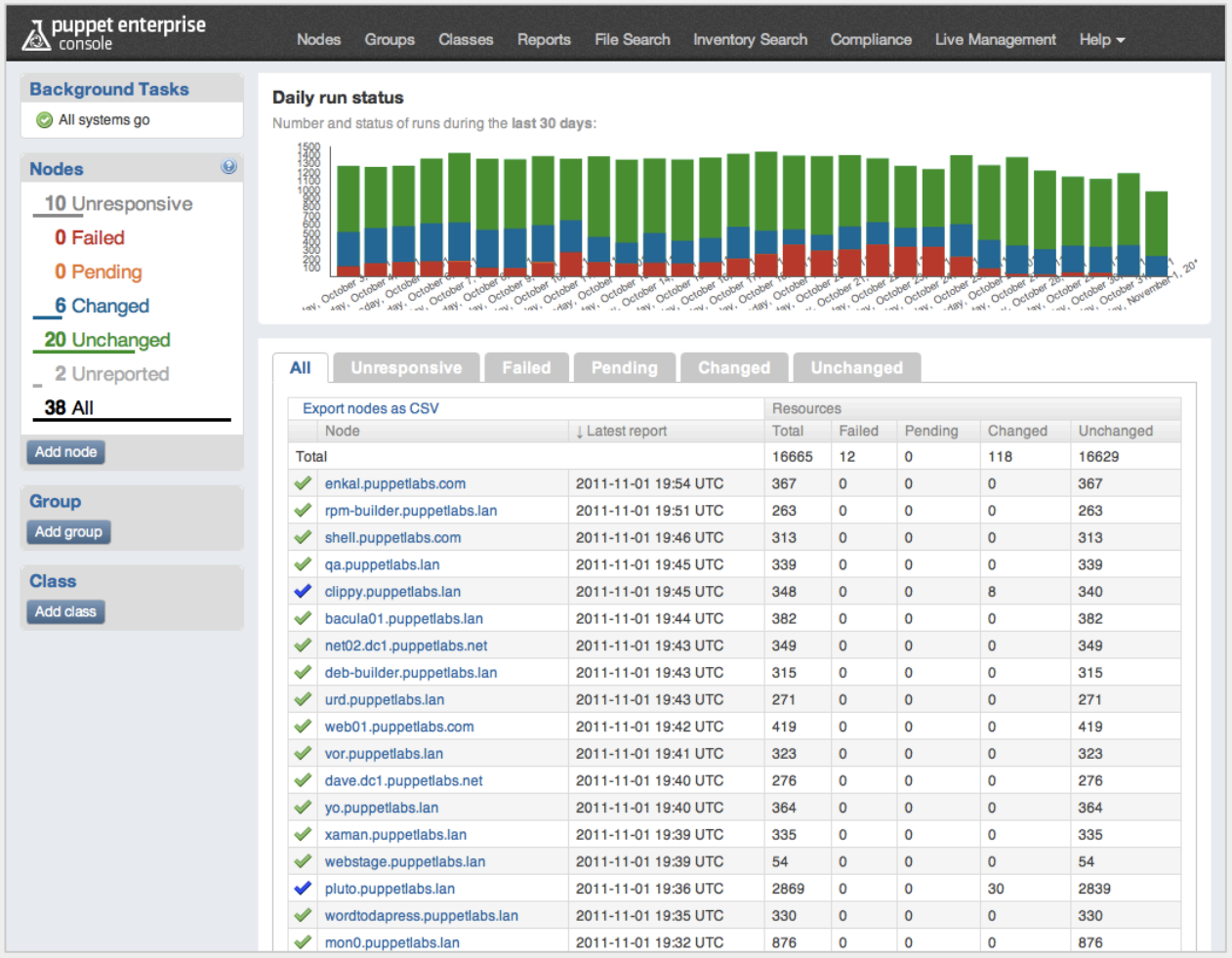


3 Enforce: Puppet compares your system to the desired state as you define it, and automatically enforces it to the desired state ensuring your system is in compliance.

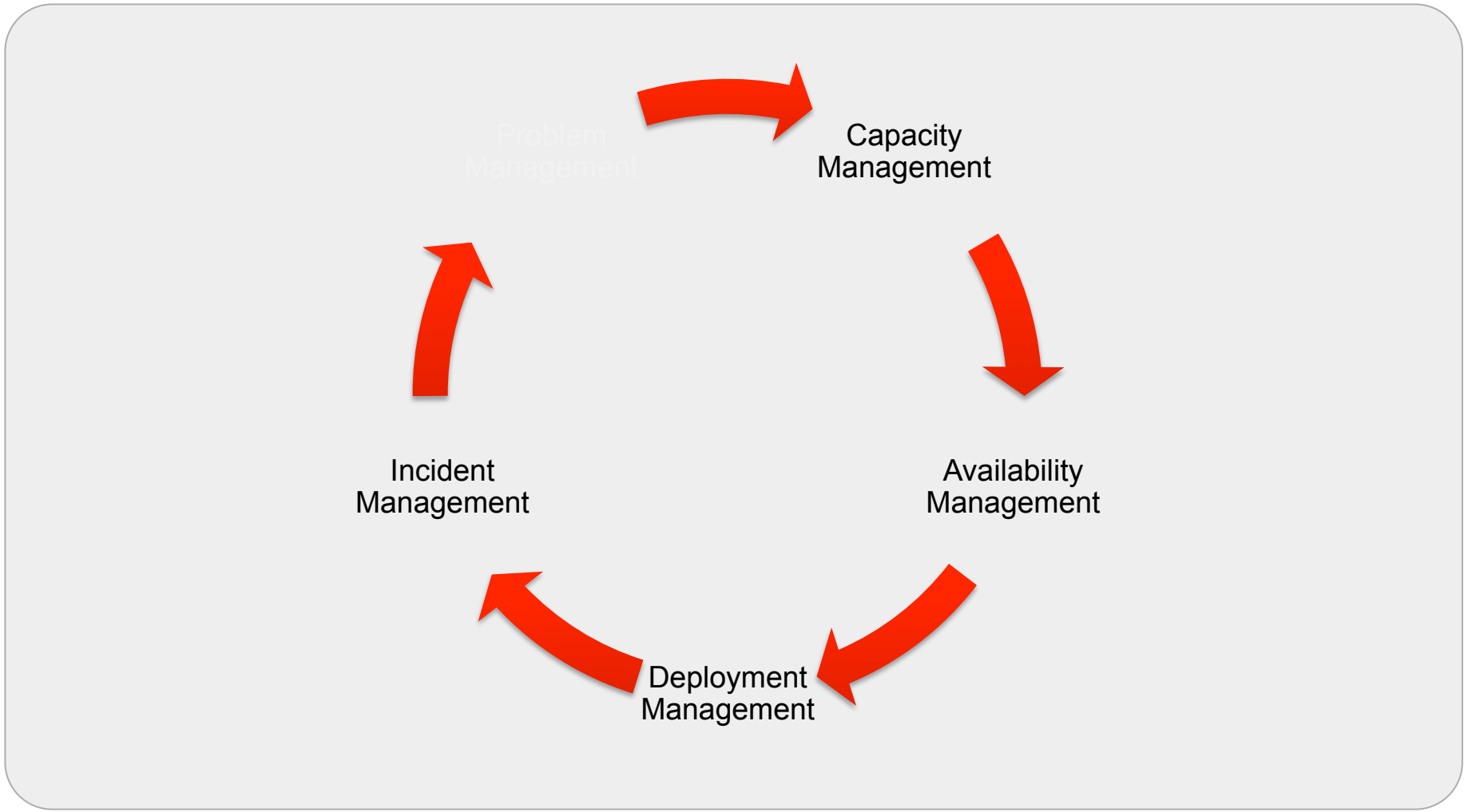
Deployment Management – Puppet Example

```
package { 'sshd':
  ensure => installed,
}

service { 'sshd':
  ensure => running,
  enable => true,
}

file { '/etc/ssh/sshd_config':
  ensure  => file,
  owner   => root,
  group   => root,
  mode    => 0644,
  source  => 'puppet:///ssh/sshd_config',
  notify  => Service['sshd'],
  require => Package['sshd'],
}
```

Graphical User Interface

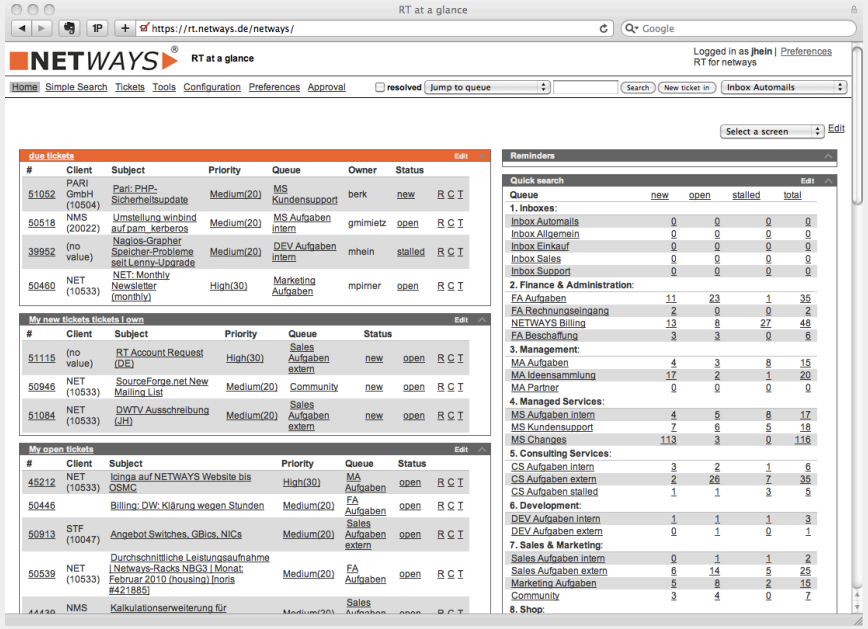


Incident Management



Incident Management - Tools

- Implement the most important ITIL processes
  - Request Fullfilment
  - Incident Management
  - Problem Management
  - Change Management
- Main features
  - Assign ticket id no.
  - Store history and comm.
  - Assign to owner
  - Track progress
  - Priorisation & classification
  - Resolve tickets
  - Statistics & reporting

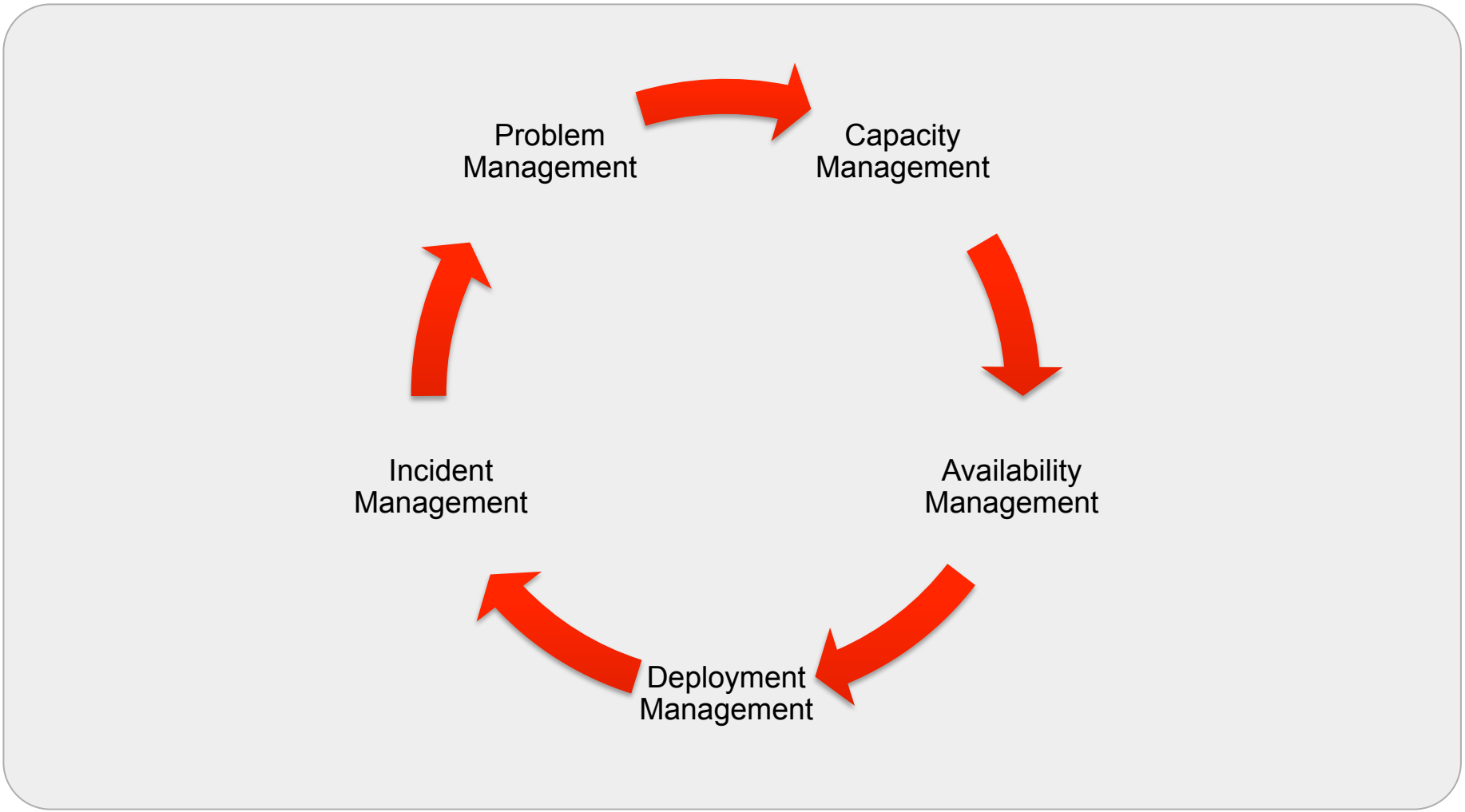


http://bestpractical.com/rt/

Incident Management – Ticketing-Integration

- Integration w/ monitoring system
  - Create tickets not mails
  - Processing of alerts from monitoring system
  - Resolve tickets if problem goes away
- Monitor ticketing system
  - Availability
  - Monitor service levels and reaction time
  - Escalate tickets with high priority
- Integrate with CMDB
  - Assign Tickets to CIs
  - Integrate tickets into CI history

Problem Management



Problem Management - Datasources

Monitoring

Nagios
Icinga
OpenNMS
Zabbix

Ticketing

Request Tracker
OTRS
Mantis

CMDB

iDoIT
OCS Inventory
GLPI

Updates

Updian
YaST
RedHat Satellite

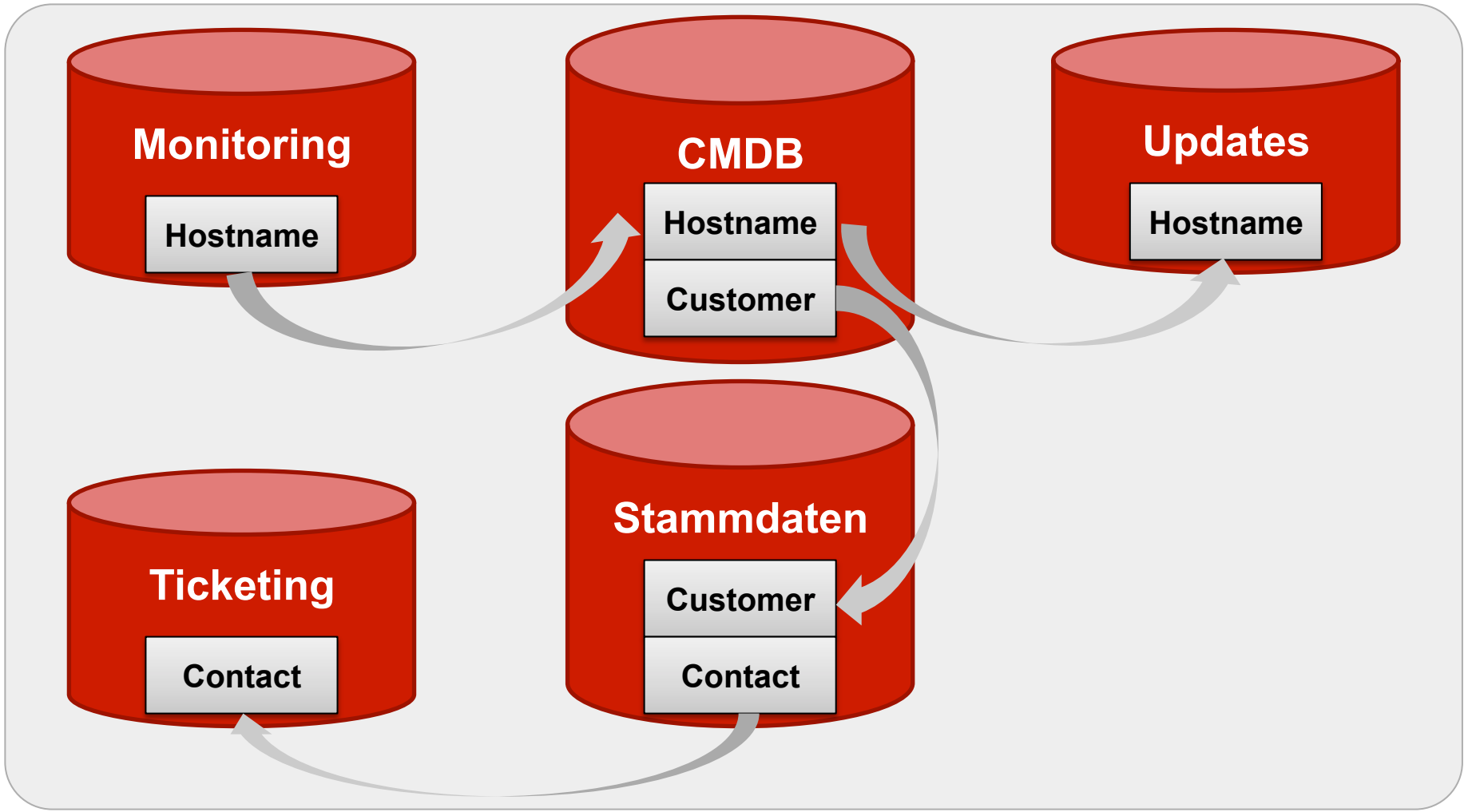
Accounting

Traffic
Bacula Backup

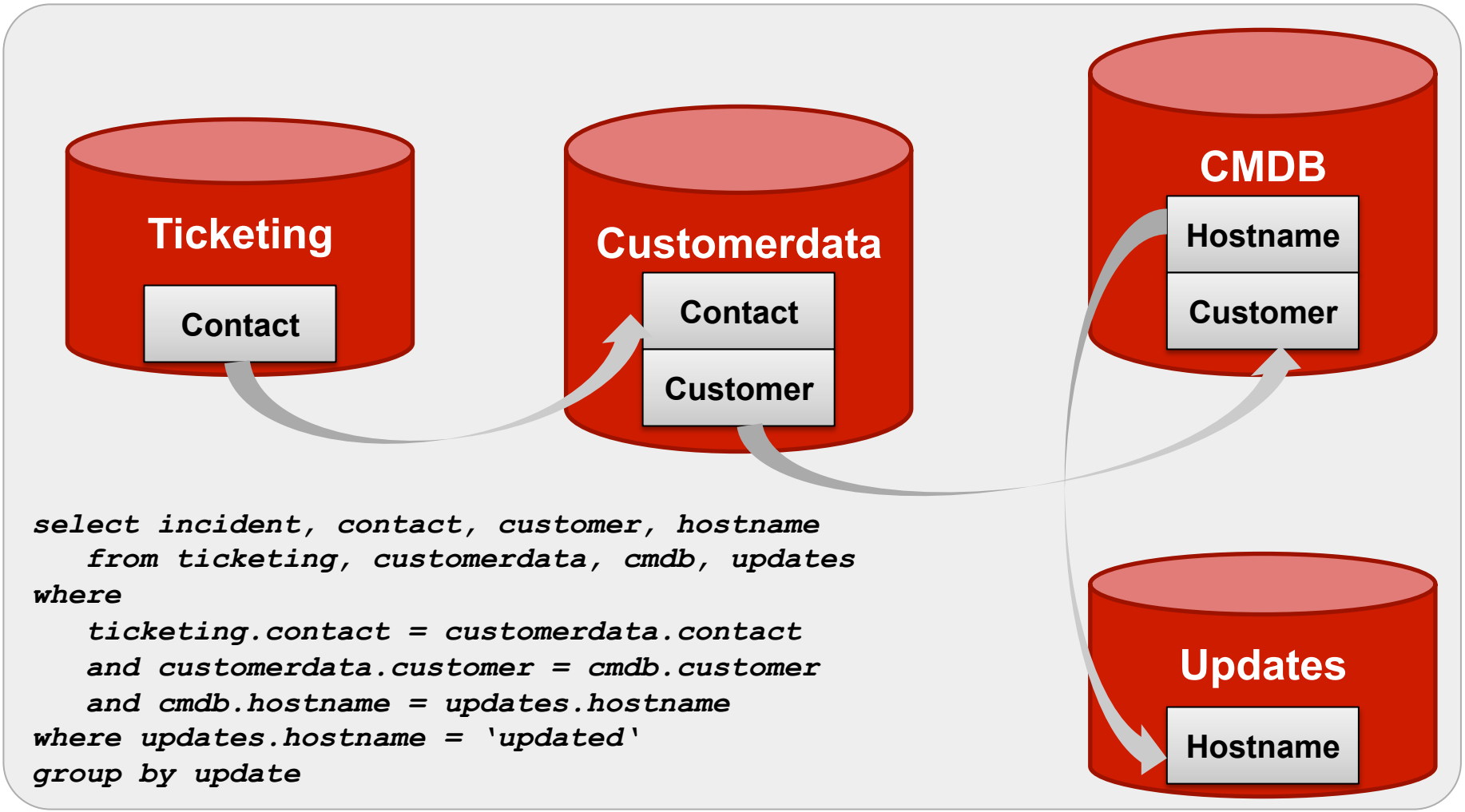
Customerdata

SugarCRM
OpenBravo

Problem Management - Key-Relations



Example – Incidents after update




```
select incident, contact, customer, hostname
   from ticketing, customerdata, cmdb, updates
where
   ticketing.contact = customerdata.contact
   and customerdata.customer = cmdb.customer
   and cmdb.hostname = updates.hostname
where updates.hostname = 'updated'
group by update
```

Problem Management - Reporting

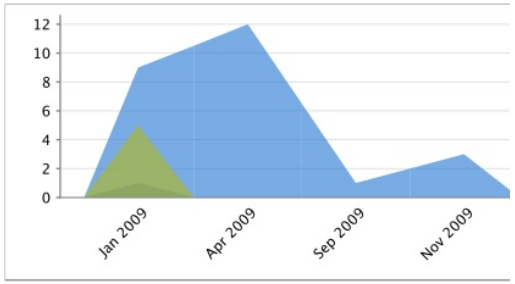
- Report generation using Open Source Tools
  - Jasper
  - Pentaho
  - Birt
- Advantages
  - Automatic report generation and distribution
  - Data aggregation using different datasource
  - Multiple formats out of the box

Samplereport

Hostname:	f1-switch
Address:	10.10.100.10
Current State:	

This graph displays the notifications for given host

0 = Up
1 = Down
2 = Unreachable



Services for host: **f1-switch**

Servicename	Displayname	Current State	Command
f1-switch	PING		check-ping-vnd!10!20

Hostgroups for host: **f1-switch**

Hostgroup
Firma1

Hostname:	f1-db1
Availability for service:	MySQL

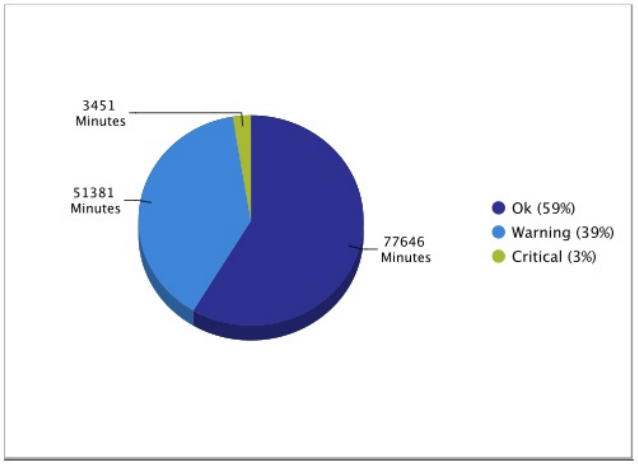
This graph displays the availability for given service

Start: 20090601

End: 20090901

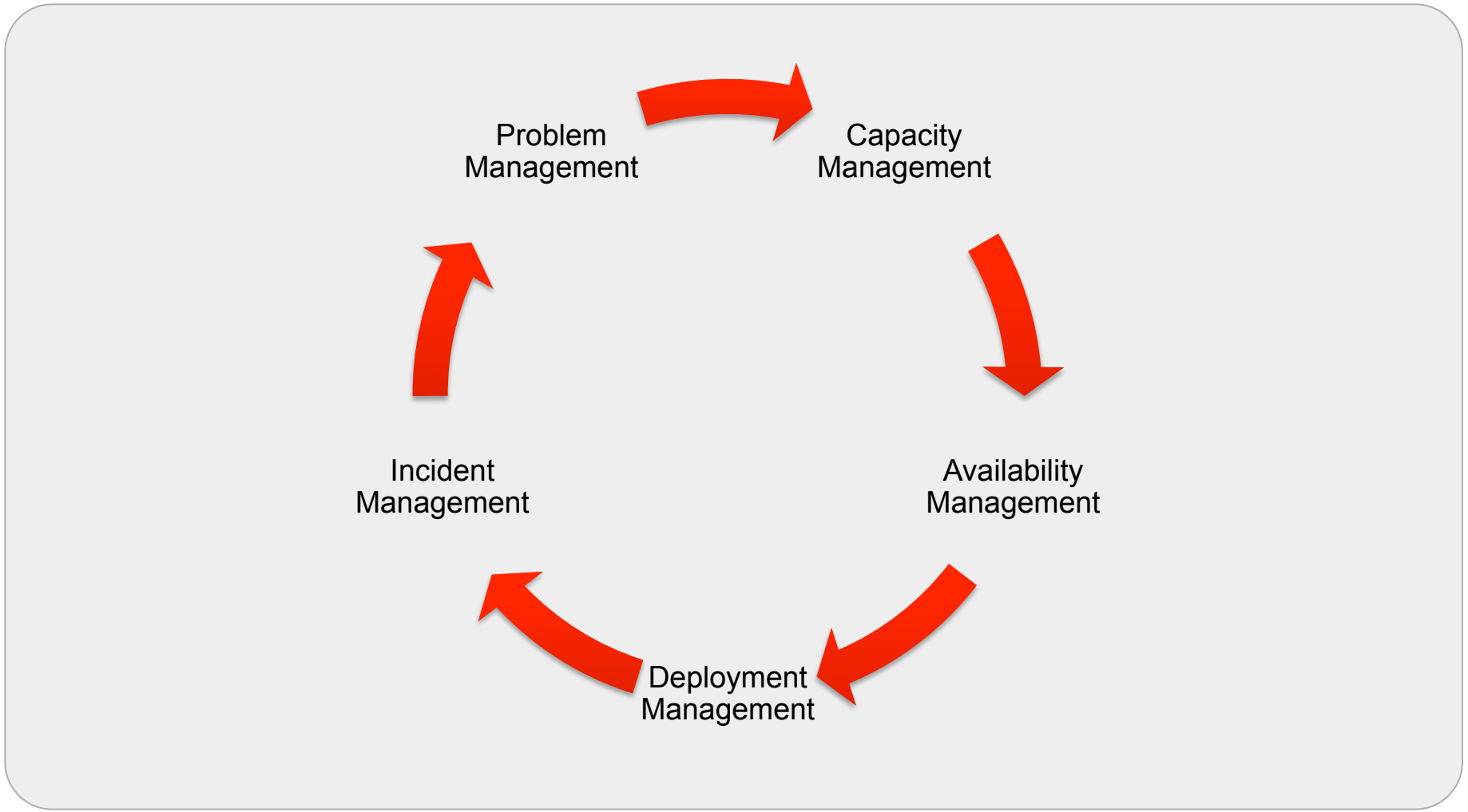
Period in minutes:

7948800

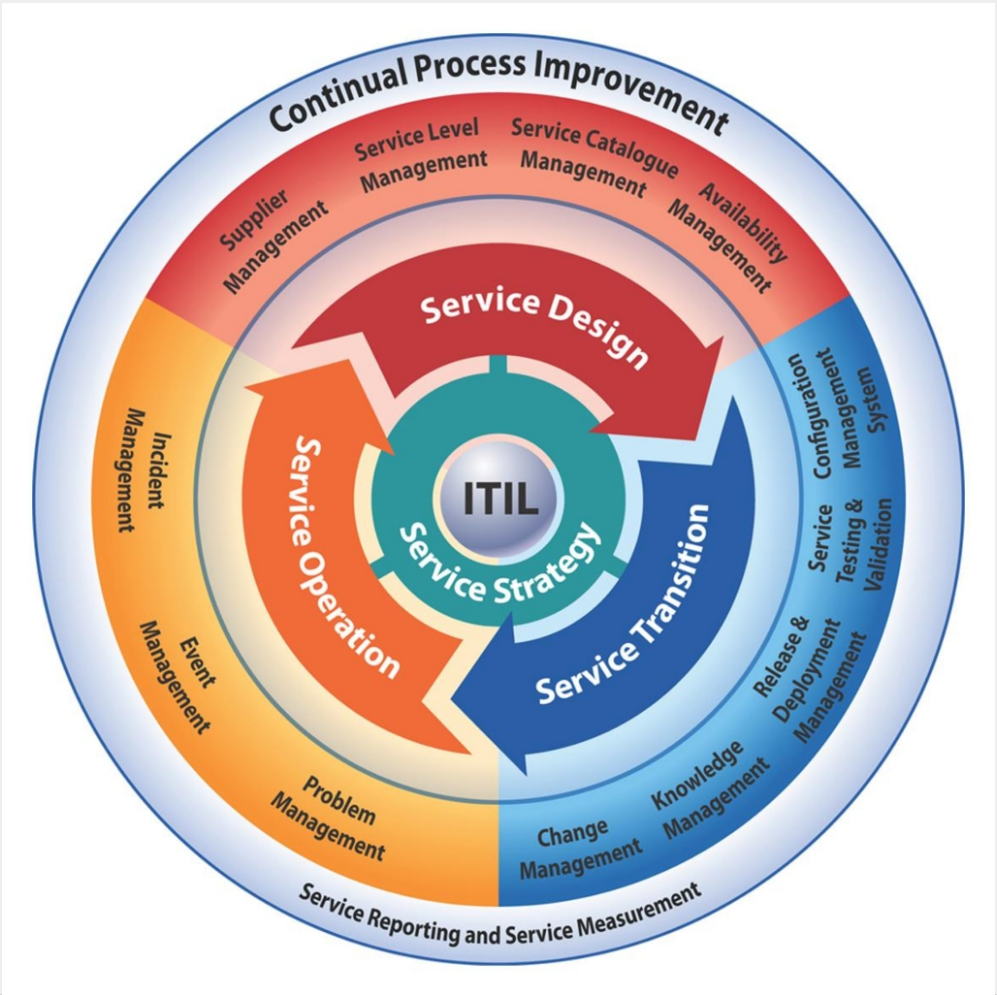


State	Duration in seconds	Duration in minutes	Duration in hours
Ok	4658797	77646	1294
Warning	3082893	51381	856
Critical	207110	3451	57

Big Picture


Problem Management
Capacity Management
Availability Management
Deployment Management
Incident Management

ITIL Lifecycle



Questions & Answers

Q&A

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Question & Answer

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