Intesa Sanpaolo Bank monitors 7k servers with Zabbix

A Study case by Intesa Sanpaolo & Quadrata
Francesco Giordano

Francesco is a Systems Administrator at Intesa Sanpaolo. Previously worked as a Software Developer, now focuses in ISP are UNIX systems, virtualized environments (VMware, XEN and KVM), hyperconverged and HA products. His team uses Zabbix to anticipate, investigate and study certain situations to pro-actively prevent possible issues in the future.

Pietro Antonacci

Pietro started working for Quadrata in 2012, helping customers with Unix systems administration. He soon started learning Zabbix as a core platform for infrastructure monitoring, becoming a Zabbix Trainer in 2015. Pietro is also interested in operations automation, scripting, front-end development.
● Large domestic network: approximately 4400 branches and 11.1M clients

● Strategic international presence

  ○ Selected commercial banking presence in Central and Eastern Europe and Middle Eastern and North African countries reaching **8.3 million clients in 12 countries through a network of approximately 1400 branches**
■ 90 mln of transactions per day supported by our ICT infrastructure
■ 4 Data Centers to allow high reliability of data in case of disaster
■ Availability of 2 sites in each of the 3 production centers (Turin, Milan and Parma) in synchronous copy mode
■ Disaster recovery assured by a third site availability for each site in asynchronous copy mode
IT company with long experience in supporting medium/large Enterprises

Proud to accomplish tasks using exclusively Open-Source software

Been using Zabbix since 2004, version 1.0

Main partners: HP, IBM and EMC
The case: Monitor a Large IT Infrastructure

- 20+ Clusters
- 160 Servers
- 200 UCS Servers
- 3000+ Servers
- 126 Hypervisors with 3000+ VMs
- 600+ Veritas Resources Dynamically Located
The Infrastructure: Zabbix Setup

Server + Frontend
- Zabbix
  - Release 3.2.3
  - 8-core 20GB RAM

DB Server
- MySQL
  - 8-core 16GB RAM

- Virtual Server
- 7.2
- Web Server

- Database
- 5.6

- 7000 hosts
- 390000 items
- 170000 triggers
- 5000 NVPS
Cluster Automatic Discovery

- Zabbix Agent on cluster nodes with use of HostnameItem and HostMetadataItem

The last one is the source for auto-registration action
Veritas Cluster auto-registration example

**DISCOVERY**
- The Host shows up to the Zabbix Server

**AUTO-REGISTRATION**
- Active Auto-registration filtered by HostMetadata Item

**DEFINITION**
- A custom script retrieve which cluster the host belong to using the zabbix-get command

**COMPLETION**
- A Hostgroup will be created with the name of the Cluster and will be also defined a Host associated to VCS Hostgroup and Template.
Node/Package Auto-discovery

**DISCOVERY**

*STEP 1*

Discovery of Packages/Nodes included in the Cluster template

**HOST CREATION**

*STEP 2*

A host will be created for every node/package, with dedicated templates attached to them

**DEFINITION**

*STEP 3*

Elements of nodes & packages are discovered

**DONE**
Templates in details: Veritas Cluster Template

- Item to check the alignment of kernel parameters between all cluster nodes
- Item to monitor node status
- Item to monitor Zabbix Agent availability on cluster nodes
- List of packages and their status

We also monitor the good execution of the following scripts:

- Cluster Node Discovery
- Cluster Packages Discovery
- VCS dump update
Veritas Nodes and Packages

Nodes and Resources of ISP Infrastructure are discovered by Zabbix with two different Low Level Discovery (LLD)

- Cluster Node Discovery
- Cluster Packages Discovery
Veritas Nodes Discovery

If the node is defined on Zabbix Server as host the discovery is completed, otherwise Zabbix will associate a template to it based on the node type [VCS-Linux / VCS-HP-UX]

These templates have active items.
Veritas Packages Discovery

- The script associated to the LLD, discovers the packages through info retrieved from the cluster.
- Packages will be defined as hosts into the Zabbix Server
- A custom template will be associated to them (ISP -Template VCS Package).

This template has only passive items, because the resources have a changing location between the cluster nodes.
Templates in details: Veritas Node Template

- It contains items monitoring Operating System status
- Check filesystems contained into the FSTAB (by policy in it there are only filesystem regarding bare metal server)
Templates in details: Veritas Package Template

- Item regarding the location of the package (in which node the package is running)
- Check only the filesystem that belongs to the VCS package
- Monitor the resources status of the package
- Package status (ONLINE/OFFLINE)
Monitoring Critical Core Services

Top Core Applications

- ABC
- Mobile
- Internet Banking
- FVC
- ATM
Custom Dashboard API based focused on monitoring Top Core Services.
Custom Dashboard - Veritas Cluster View

Graph View on the components of the cluster and relative status
Custom Dashboard - Ticketing System

Ticketing system focused on reducing SLA period and punctual problem solving.
Future Scenario

- Monitoring of Oracle VMs Exalogic
- Monitoring of Docker containers
- Tuning metrics for specific applications (Web Servers, Databases...)
Issue / Feature Requests

1- ZBXNEXT-2072 ===> Add host interfaces to Host Prototype

2- ZBXNEXT-3205 ===> Add support for wildcards and / or global regular expressions in context macros
Thanks for watching!

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