



ZABBIX

Case study: Zabbix at the
Netherlands Ministry of
Infrastructure and Water
Management



Rijksoverheid

- **The Ministry of Infrastructure and Water Management** is the Dutch Ministry responsible for transport, aviation, housing policy, public works, spatial planning, land management and water resource management.
- Headquartered in the Hague
- Annual budget - €15.7 billion (as of 2018)





- Zabbix is used by the **Central Information Services** of the **Rijkswaterstaat - Directorate General for Public Works and Water Management**
- **Zabbix** monitors the underlying IT infrastructure, consisting mostly of Linux hosts
- Mostly **Red Hat** software and services
- Zabbix not only performs monitoring, but also plays a large role in **automatic remediation** of detected problems



Some of the infrastructure components monitored by Zabbix:

- Red Hat Satellite and Capsule servers
- Red Hat Virtual Data Center monitoring
- Red Hat Identity management
- Ansible automation platform
- Custom IoT devices



Red Hat Satellite and Capsule monitoring

- 1 Satellite 6 server
- 15 Satellite capsules for different environments
- Approximately 2000 Linux machines connected to the Satellite Capsules
- Machines retrieve their packages from the Capsules
- Capsules act as proxies that fetch data from the Satellite server
- Capsules manage the content (packages, subscriptions) for the machines



Red Hat Satellite and Capsule monitoring

- Zabbix performs Capsule discovery via low-level discovery rules
- The discovery is done via HTTP requests which collect data from the REST API
- For each Capsule, it's content sync status is monitored via Zabbix
- If the content sync is failed – new packages are not installed
- Connectivity between Capsules and the Satellite is monitored by performing port checks



Red Hat Satellite and Capsule monitoring

- Zabbix discovers and monitors Satellite repositories
- Monitor when the last sync was performed and current sync status
- Software subscription discovery and monitoring
- Alerts are sent related to subscription expiry warnings (180/90/30 days left)



Red Hat Virtual Data Center license monitoring

- Virtual DC license must be present on ESX hosts
- Avoid situations where ESX host with an active license has no VMs on it
- Avoid situations where ESX host with no license has VMs migrated to it
- The action executed by the trigger invokes Ansible to automatically attach or detach a license to/from ESX host



Red Hat Identity Management monitoring

- Discover and monitor processes on the IDM
- Monitor IDM service status
- The monitoring is done via Zabbix agent user parameters



Ansible automation platform monitoring

- 4 Controllers
- Ansible Automation platform API is used to discover the controllers
- For each controller – check if any jobs are running, last seen time, capacity, status
- Sometimes controllers are disabled for maintenance and re-enabled – alert on disabled controllers



Ansible automation platform monitoring

- Monitor decommissioned machines
- Decommissioned machines are assigned to a group instead of being immediately deleted
- Monitor the grace period for decommissioned machines and alert if the grace period is over
- Generate a warning if an Ansible host is disabled for 7 days. Escalate it after 14 days
- Discover and monitor configuration management jobs
- If a job fails, restart it. If the issue is still not resolved - escalate
- Ansible checks are mostly done via HTTP agent



Ansible automation platform monitoring

- Discover and monitor configuration management jobs
- If a job fails, restart it. If the issue is still not resolved - escalate
- Ansible checks are mostly done via HTTP agent
- Preprocessing (JSONPath, JavaScript, Regex) is used together with the HTTP requests



Custom IoT device monitoring

- Custom IoT devices are used to monitor water level, quality, temperature and other data
- Running RasPI modules
- Zabbix monitors the device status via Zabbix agent 2



Custom IoT device monitoring

- Local Agent DB is used if the agent is unable to send the metrics
- Network outage is possible on these devices
- Metrics like Modem signal strength/quality, country codes, hardware temperatures

The ZABBIX logo consists of the word "ZABBIX" in a bold, white, sans-serif font, centered within a solid red rectangular box. The background of the entire slide is a dark blue gradient with a faint, glowing network of white lines and dots, and a semi-transparent world map in the center-right.

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Thank you!
Q&A
