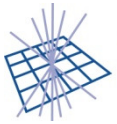

Security Update

Mingchao Ma

STFC - RAL

HEPSYSMAN workshop, 1st July 2011

Overview

- Security Update
- Security Service Challenge 5
- Discussion

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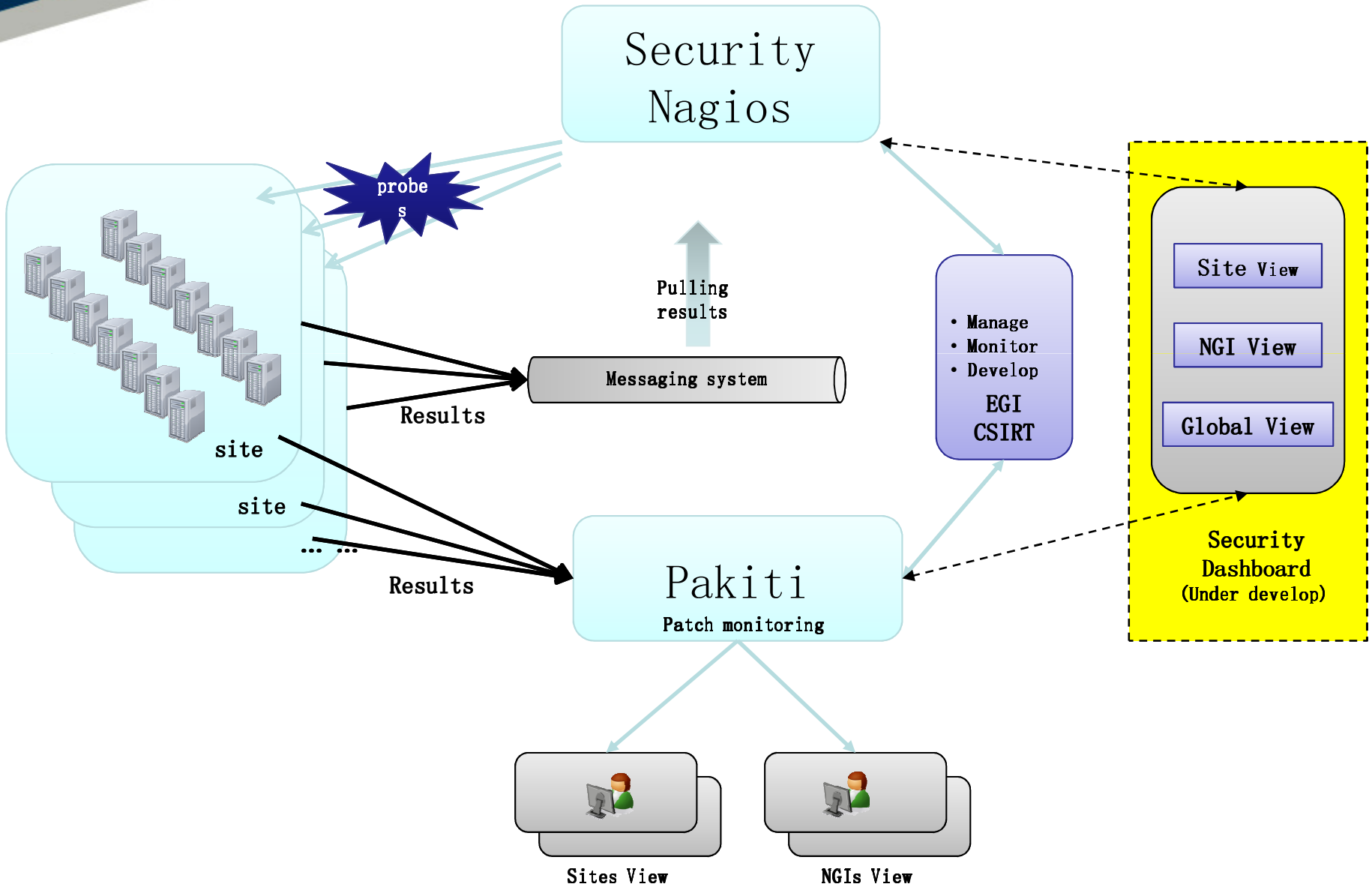
Incident and Vulnerability

- GridPP- no incident reported in the last year
  - EGI - no incident reported in last two months
- Since beginning of EGI project
  - 14 security alerts, 3 Critical, 8 high and 3 moderate
  - https://wiki.egi.eu/wiki/EGI_CSIRT:Alerts
- Good communication
  - GridPP sites and security officer
- Two separation communication channel
  - One for GridPP and one for NGS
  - Ideally, one for UK NGI

Security Monitoring



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Monitoring in UK

- GridPP sites are monitored by EGI security monitoring framework
- Pakiti site view is available
- NGS sites are not monitored at the moment
  - All NGS sites are in candidate status
  - EGI only monitors certified sites
- ROD and sites can use EGI security dashboard once it is available
  - By end of 2011
- Sites internal monitoring?
  - Log monitoring and/or network monitoring?

Security Training

- Training session at EGI TF2011 planned
  - Six hours requested
  - 3 hours operational security - EGI CSIRT
  - 3 hours grid middleware security - middleware security experts and developers
  - Provisional list of training topics discussed
  - Will finalise the detail once the requested sessions are confirmed

Security Drills

- Security Service Challenge (SSC)
  - SSC 1-3 were carried out in EGEE ear
  - Continue in EGI
    - Much improved SSC framework
    - SSC4: 13 sites including all WLCG Tier1 sites were challenged last year
    - SSC5: started on 25th May 2011
- UK SSC 4 is being planned
  - the SSC framework will be made available by middle of September 2011
  - UK SSC4 will be done by end of 2011

Plan

- To form a small security team to cover UK NGI operational security
  - GridPP and NGS
- Site security review
  - Self audit
  - Cross-site audit
- SSC4 UK run
- To have a long term strategy for security monitoring


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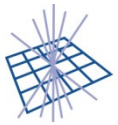
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SSC5 update

SSC5

- Participants/Players
  - 40 sites in 20 countries
    - https://wiki.egi.eu/wiki/EGI_CSIRT:Security_challenges
  - ATLAS VO
  - ATLAS Pilot framework for job submission
  - 2 Certificate Authorities
  - NGI security officers assisted sites investigation
  - EGI CSIRT coordinated the overall response

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The Scenario

- SSC5 operator simulated a large scale cross NGIs incident by submitting "malicious jobs" to multiple sites with "compromised" certificates
- The "malicious jobs" running at multiple sites built up a "botnet"
- The "bot (malicious job)" periodically reported to C&C server
- The "bot" was controlled by C&C server

The Challenge

- Affected site
  - To identify malicious jobs/bots running at sites
  - To identify malicious job owner(s)
  - To identify malicious network traffic
  - To identify compromised DNs
  - To contain the incident
  - To find further information related to the malicious job and/or compromised DNs
  - To report findings to EGI CSIRT promptly

The key is to follow incident handling procedure

The Challenge

- NGI security officers
  - To assist site's investigation
  - To coordinate NGI wide response
- EGI CSIRT
  - To assist site and NGI security officer
  - To coordinate with sites, VO, CA and NGI security officer to contain the incident as soon as possible
  - To understand the nature of the incident and possible damage
  - To do the forensic analysis of malicious binaries
  - To manage information flow among all involved parties

Timeline

- Stage 0 – preparation
  - Improved SSC framework and SSC monitoring
  - NGI security officers identified participating sites
  - Informed sites about SSC5
- Stage 1 – incident simulation
  - Wednesday 26th May 2011 until Friday 28th May 2011
- Stage 2 – final report collection
  - Done
- Stage 3 – feedback collection
  - On going
- Stage 4 – final result/evaluation
  - On going

Some Early Observations

- Most sites were able to identify the malicious job and compromised DN(s)
- The quality of incident report from sites was various
- The template for incident report improved the quality of site’s report
  - But some sites did not use it
- Some sites provided detail forensic analysis of malicious binaries
  - A member of EGI CSIRT provided very detail analysis in just a few hours

Some Early Observations

- A few sites still failed to ban the malicious DNs at the first attempt
  - Most due to mis-configuration
- Revoked VO membership could not effectively contain the incident
- However, revoked compromised certificate can contain the incident
  - But might have serious impact on VO, e.g. revoke pilot user certificate
  - Might not comply with CA's CP/CPS policy

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Some Early Observations

- To spot malicious SE activities was tricky, but we did manage to discover them
- For incident coordinator, to manage information flow was challenging
  - RTIR ticket system did help to some extend
  - Too many emails (more than 500 in about 3 days), many information was duplicated
  - This will be discussed further within EGI CSIRT

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Summary

- Still in a early stage, still processing sites reports and other information
- Final result will be made available in due course
- A detail report will be given at next EGI TF

SSC5 video