SolarWinds supply chain breach
What mainframers need to know

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SolarWinds supply chain breach
What mainframers need to know

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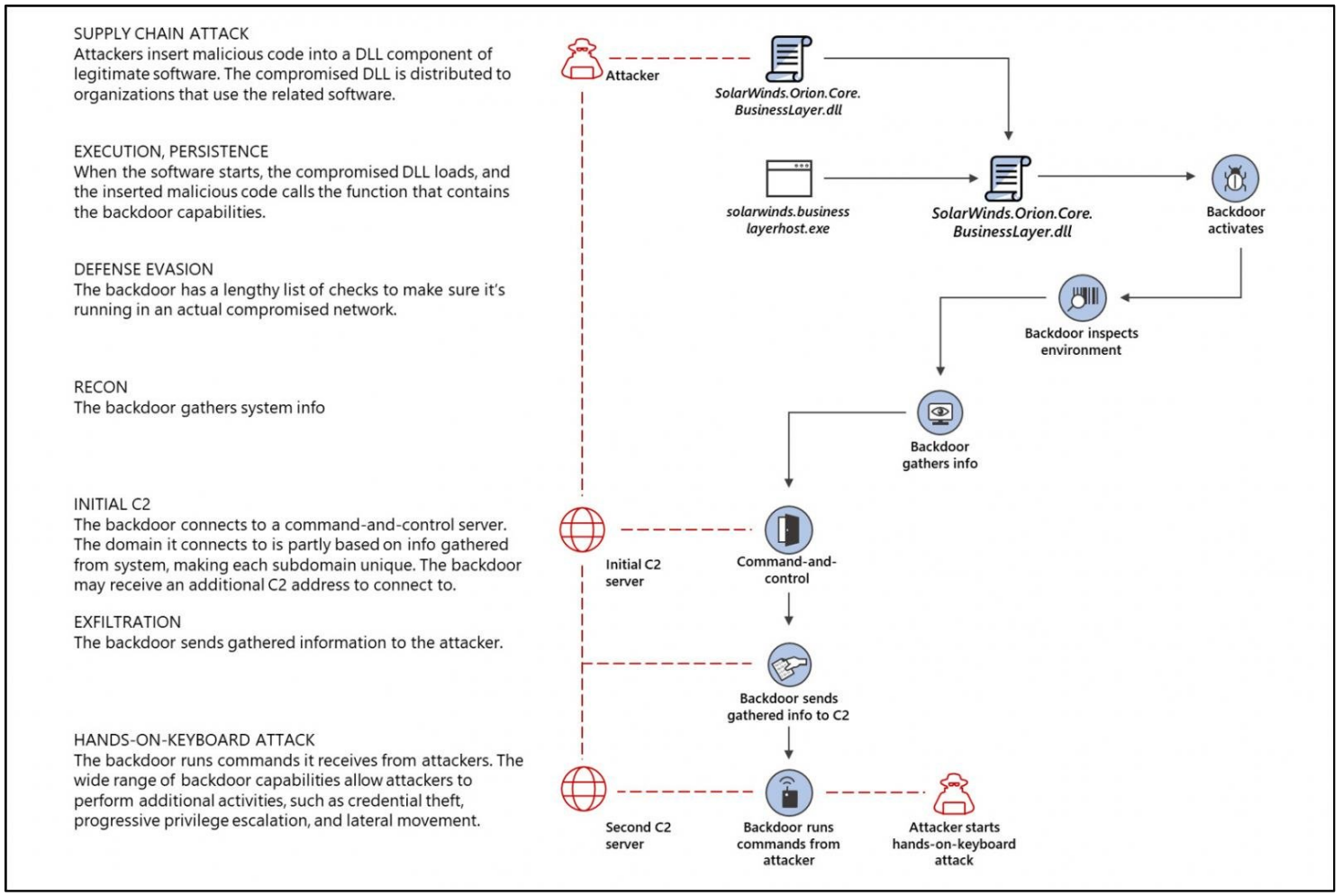
Sunburst Topology



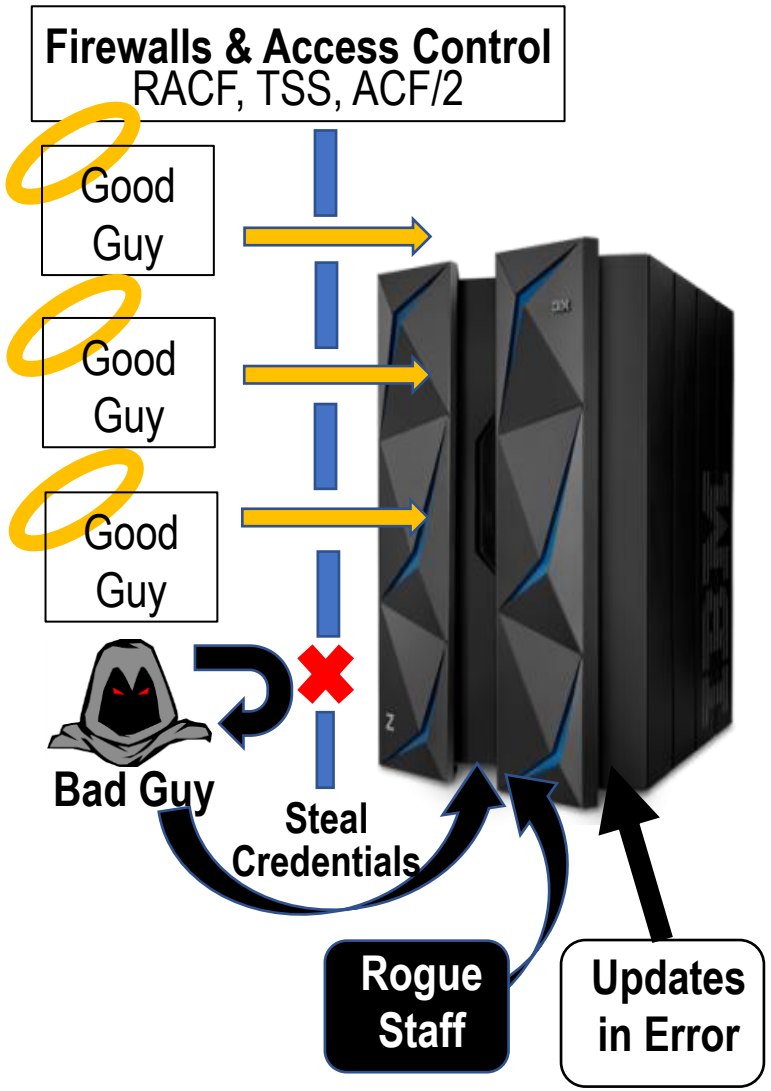
Courtesy of https://www.bleepingcomputer.com/news/security/the-solarwinds-cyberattack-the-hack-the-victims-and-what-we-know/

Related

https://www.toolbox.com/security/network-security/articles/what-tech-leaders-can-learn-from-the-solarwinds-trojan-horse-attack/

https://securityboulevard.com/2020/12/sunburst-how-it-happened-and-how-to-minimize-the-risk-of-future-nation-state-attacks/

Who are insiders?



Conventional Security – Guard the perimeter

- Insiders are past Firewall / Access Control
  1. Bad Guys Steal / Buy Credentials / USS
  2. Trusted employees go rogue (addiction, financial, health)

Well meaning staff make mistakes

- Were all changes approved and correct?
- Deployed successfully?
- Working remotely?

No matter how good your perimeter defences are motivated criminals will get in

Crux of Sunburst attack

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SolarWinds Or Vendor portion

Gain Access
C2 (Command & Control) allows manual actions
Compromise Microsoft .dll
Hackers attack BUILD modules / parms
Inside for months, More credentials / authority
Cover their tracks – remove back door lateral
Replace problem code multiple times
Final build / test / posting

Client portion

Secure Download of code
Routine test and deploy
Hackers activate secondary back door
C2 (Command & Control) allows manual actions
Inside for months
More credentials, more authority
Exfiltrate data, intelligence, ransom

Mainframe attack

Gain Access
C2 (Command & Control) allows manual actions
Compromise IBM or client module / parms

SAME
SAME
SAME
SAME
SAME
SAME
SAME
SAME
SAME
SAME
SAME
SAME
Exfiltrate data, intelligence, ransom

Is your in-house build system more secure? Or less?

Exposures

This is a sophisticated attack – time, money, expertise, patience

- Few solutions to prevent or detect attack – before or after
- Build system attacked – Backdoors baked in
- A new version complicates verifying changes are correct
- Lack of penetrating tools for real time monitoring
- Hacks closer to the end are less likely to be detected – Deploy, Post Deploy
- Attack Package / Deploy steps - Modify JCL, Scripts, etc
- Compromise backups – prevent recovery

An ounce of protection… more like a gallon

Any questions yet?

Counter-Measures

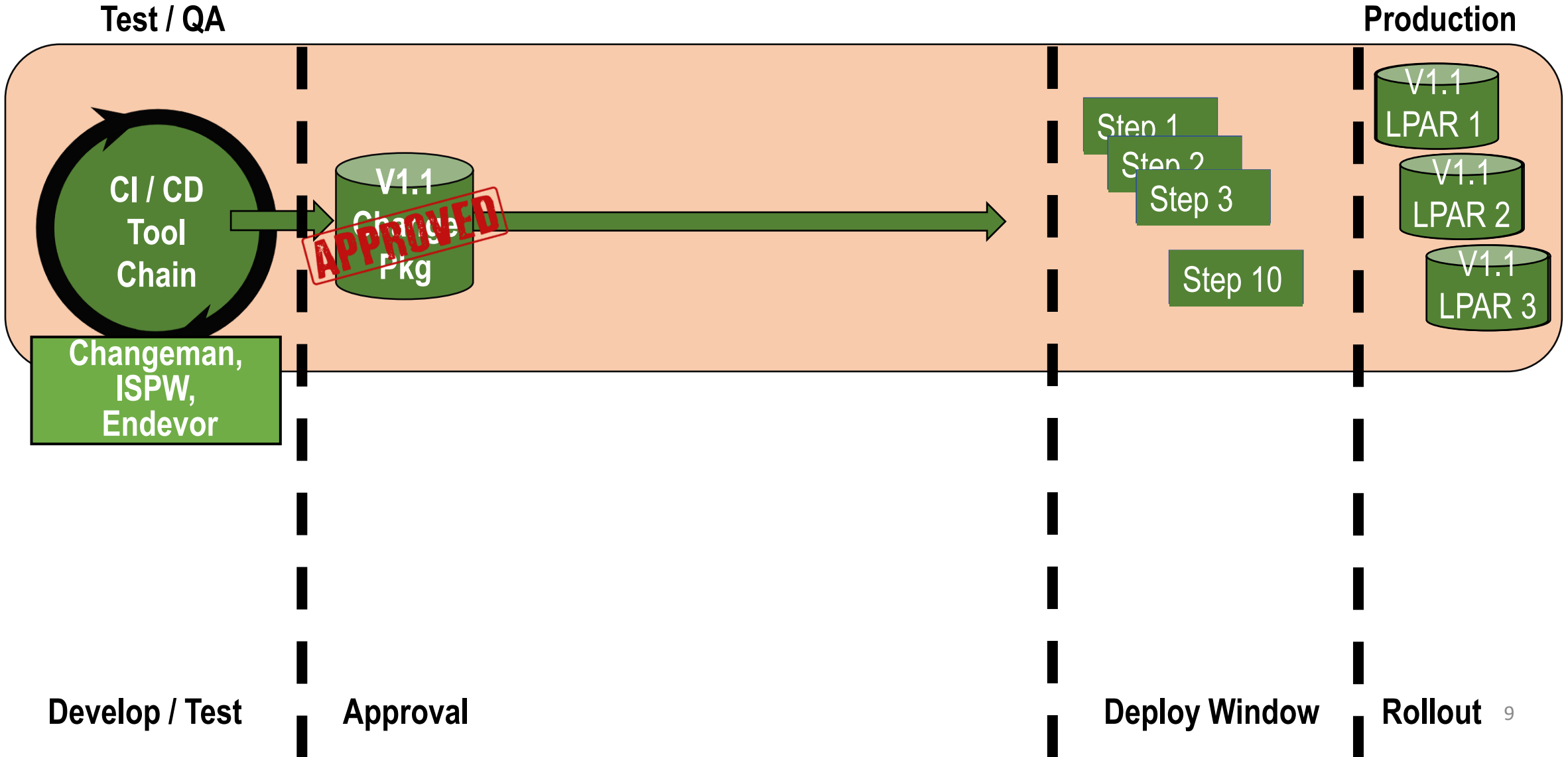
What can you do?

- Checksums (FIM) scans “look“ inside components – ask vendor to supply
- Scan your incoming maintenance / rescan before use
- Harden SCM / development process – monitor parms / modules / builds
- Peer / expert review - Verify contents & compare to prior releases
- Monitor subsequent actions – Component verify should be added
- Understand attack scope and interval – what affected, when correct
- Verify backups, Recover automation, then validate restore

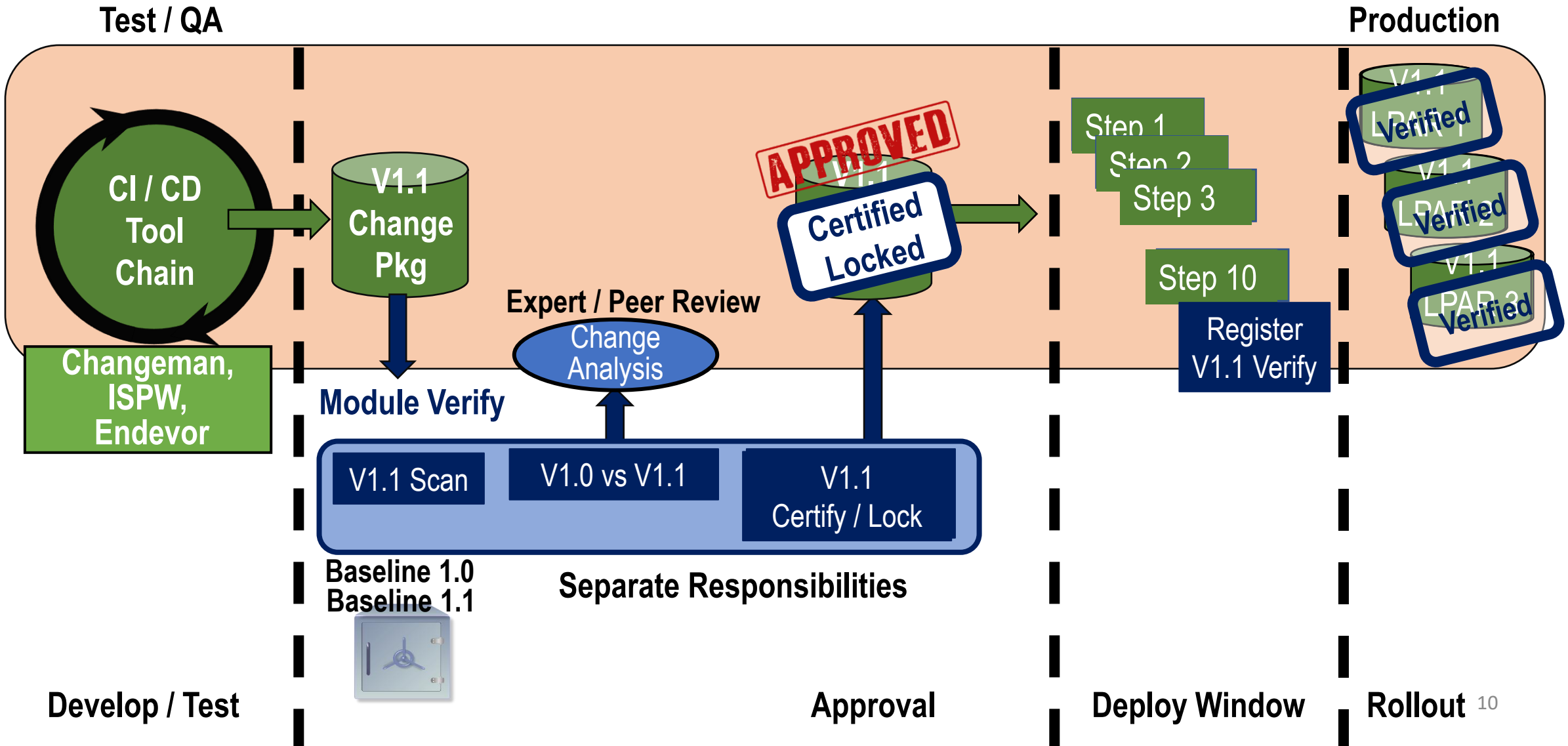
Compliance – PCI, NIST, Cyber Resiliency, GDPR, ISO

Brute Force - Audits, fines

Typical Change Process



Change Assurance



Change Assurance

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Improve Release control / approval:

- Enable separation of duties – review, issue resolution
- See every component changed (look “inside” via compare)
- Visibility, cross-impact of parallel changes
- Certify / Lock release before approval & implementation
- Correct Deploy (verify added deleted, modified or missed components)
- Malicious vs changed (change control check, SCM only updates)
- Make SolarWinds type attack much harder

Automate - Less effort, more correct changes

So what should I do?

There are a lot more dumb hackers looking for an open door
than well funded hackers with lots of time and expertise

Just because you can't be perfect …
    Protect against less sophisticated attacks

Look like a compliance hero
    PCI, NIST, Resiliency, GDPR all call for checksum (FIM) processes

Sunburst should keep cyber security experts awake at night,
    but perhaps no one cares about mainframes

As a result of this session what are you going to do?

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