Starting from Scratch

Building a Security Program From the Ground Up

@HomeBrewedSec
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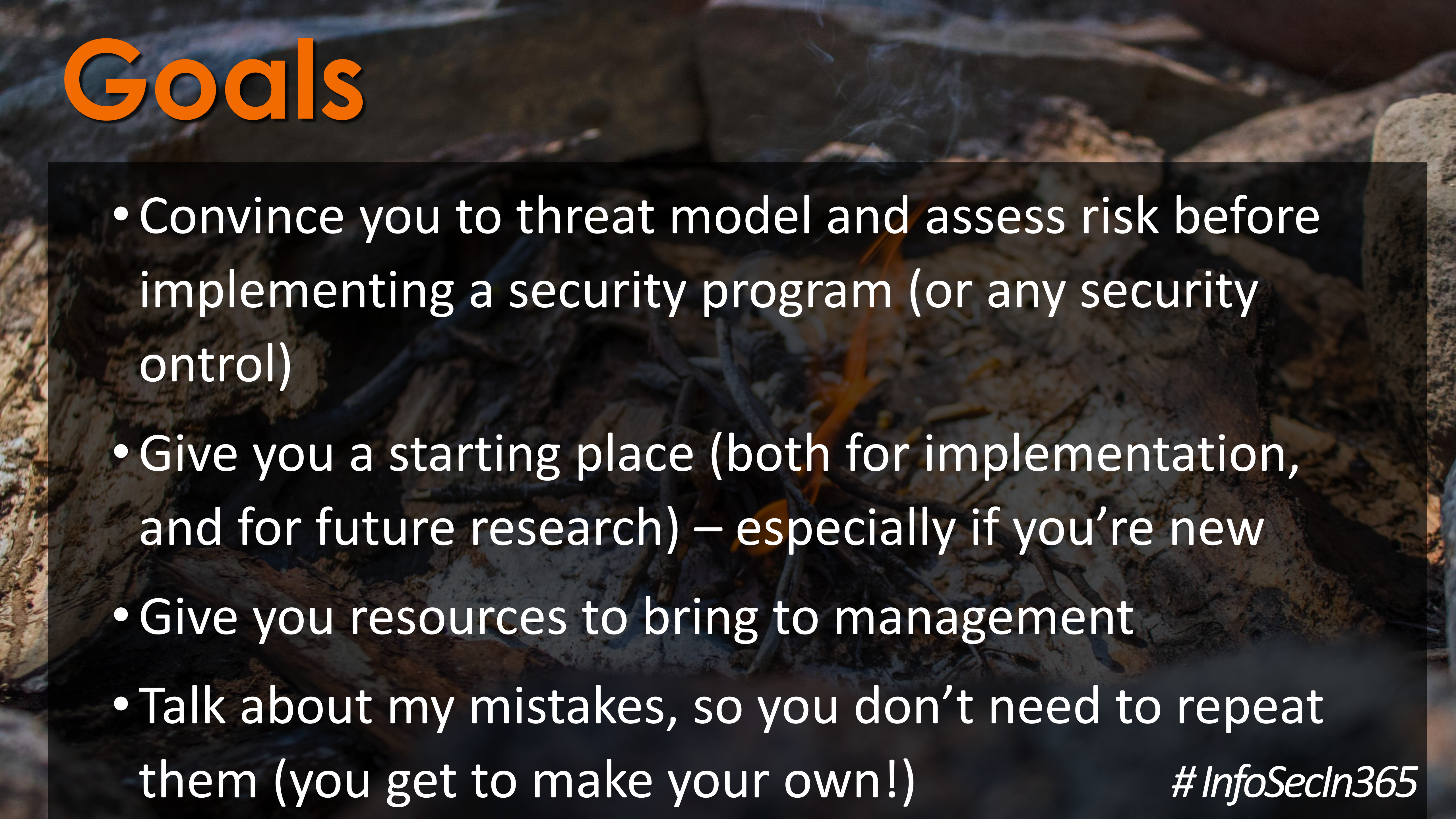
Audience Participation

- I won’t be having a Q&A time *(use the hashtag)*
  - Q&A *usually* isn’t inclusive for speaker or participant
- If I use an acronym or concept you don’t understand:
  - Tweet me *(hashtag or @ me)*
  - Heckle. Yell out “ELABORATE” or “EXPLAIN YOURSELF”



Goals

- Convince you to threat model and assess risk before implementing a security program (or any security ontrol)
- Give you a starting place (both for implementation, and for future research) – especially if you're new
- Give you resources to bring to management
- Talk about my mistakes, so you don't need to repeat them (you get to make your own!)

Phases

Phase 1 *Planning and Discovery*

Phase 2 *Analysis and Documentation*

Phase 3 *Mitigation and Remediation*

Phase 4 *Looking Forward*

Phase 1

Planning and Discovery

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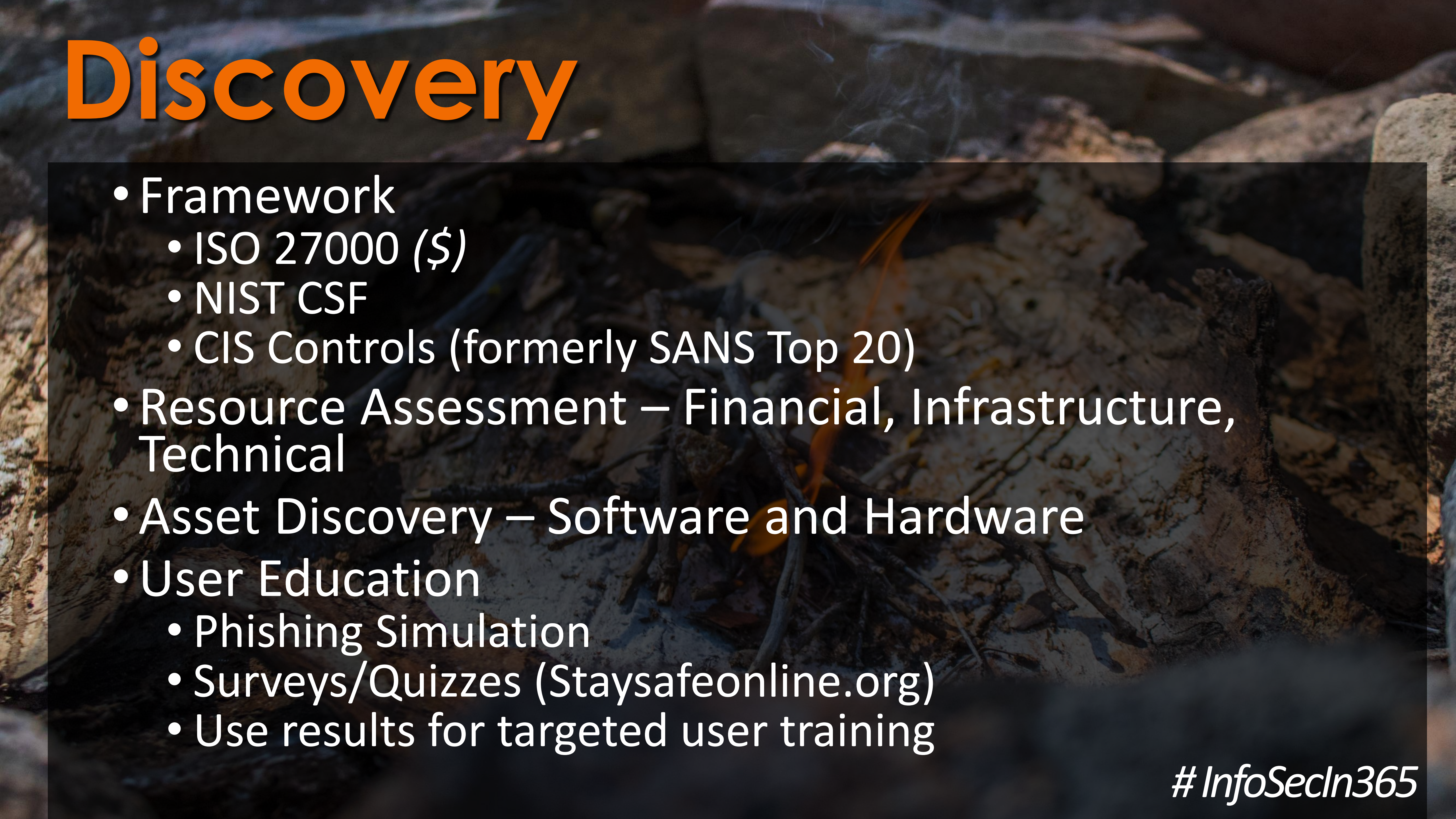

Discovery

- Framework
  - ISO 27000 *($)*
  - NIST CSF
  - CIS Controls (formerly SANS Top 20)
- Resource Assessment – Financial, Infrastructure, Technical
- Asset Discovery – Software and Hardware
- User Education
  - Phishing Simulation
  - Surveys/Quizzes (Staysafeonline.org)
  - Use results for targeted user training

Threat Modeling

- Know what you’re protecting and know what you’re protecting **against**
- Risk Assessment + Business Impact Assessment
  - Estimate what happens to the business if X happens, and the likelihood of X happening
- **Defender’s Dilemma** *(traditionally):* An attacker only needs to exploit one weakness, a defender needs to protect all weaknesses
- **Attacker’s Dilemma** *(homebrewedsec):* A defender needs to make it too expensive for an attacker to exploit a target given the value of that target

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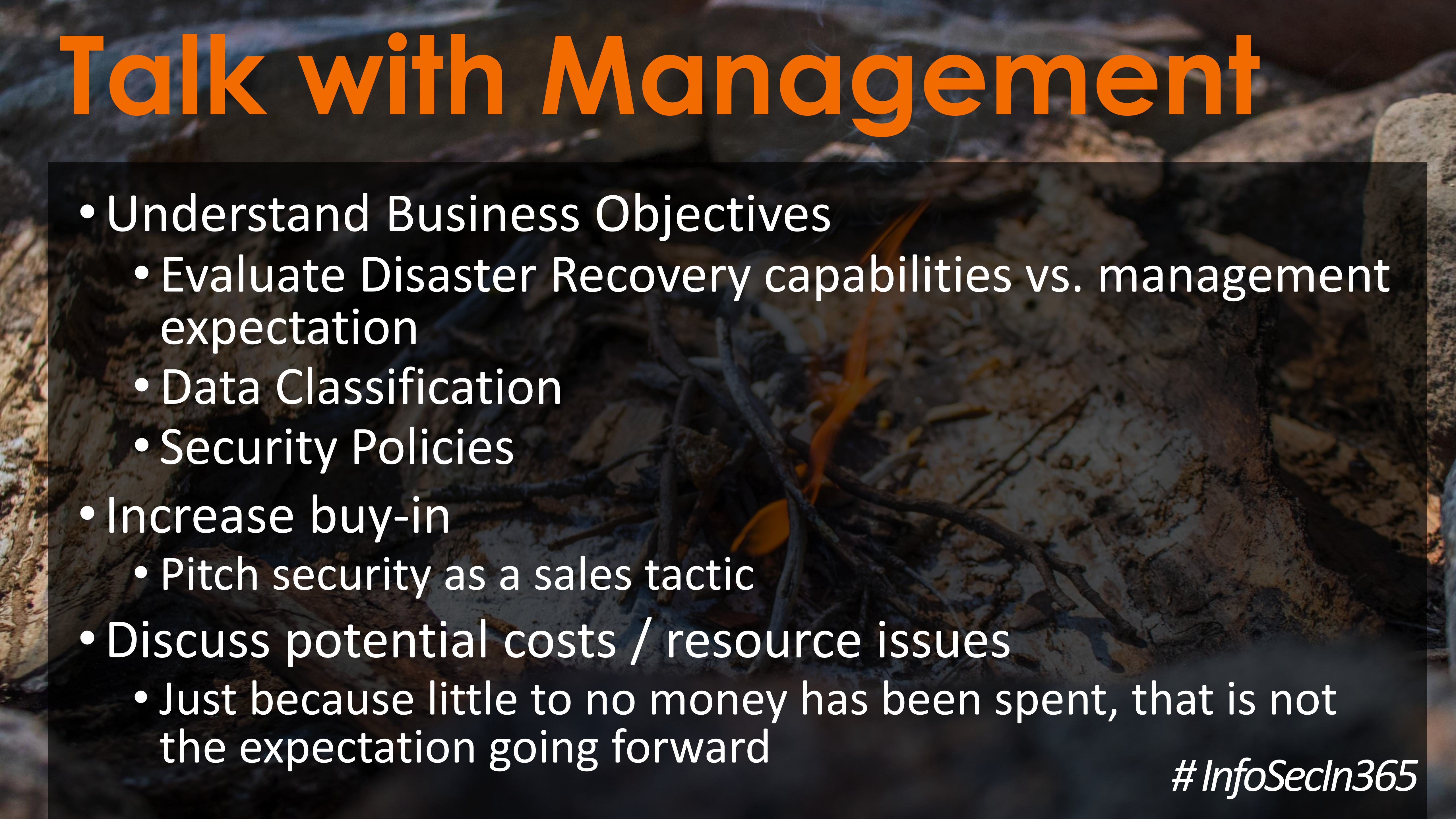

Talk with Management

- Understand Business Objectives
  - Evaluate Disaster Recovery capabilities vs. management expectation
  - Data Classification
  - Security Policies
- Increase buy-in
  - Pitch security as a sales tactic
- Discuss potential costs / resource issues
  - Just because little to no money has been spent, that is not the expectation going forward

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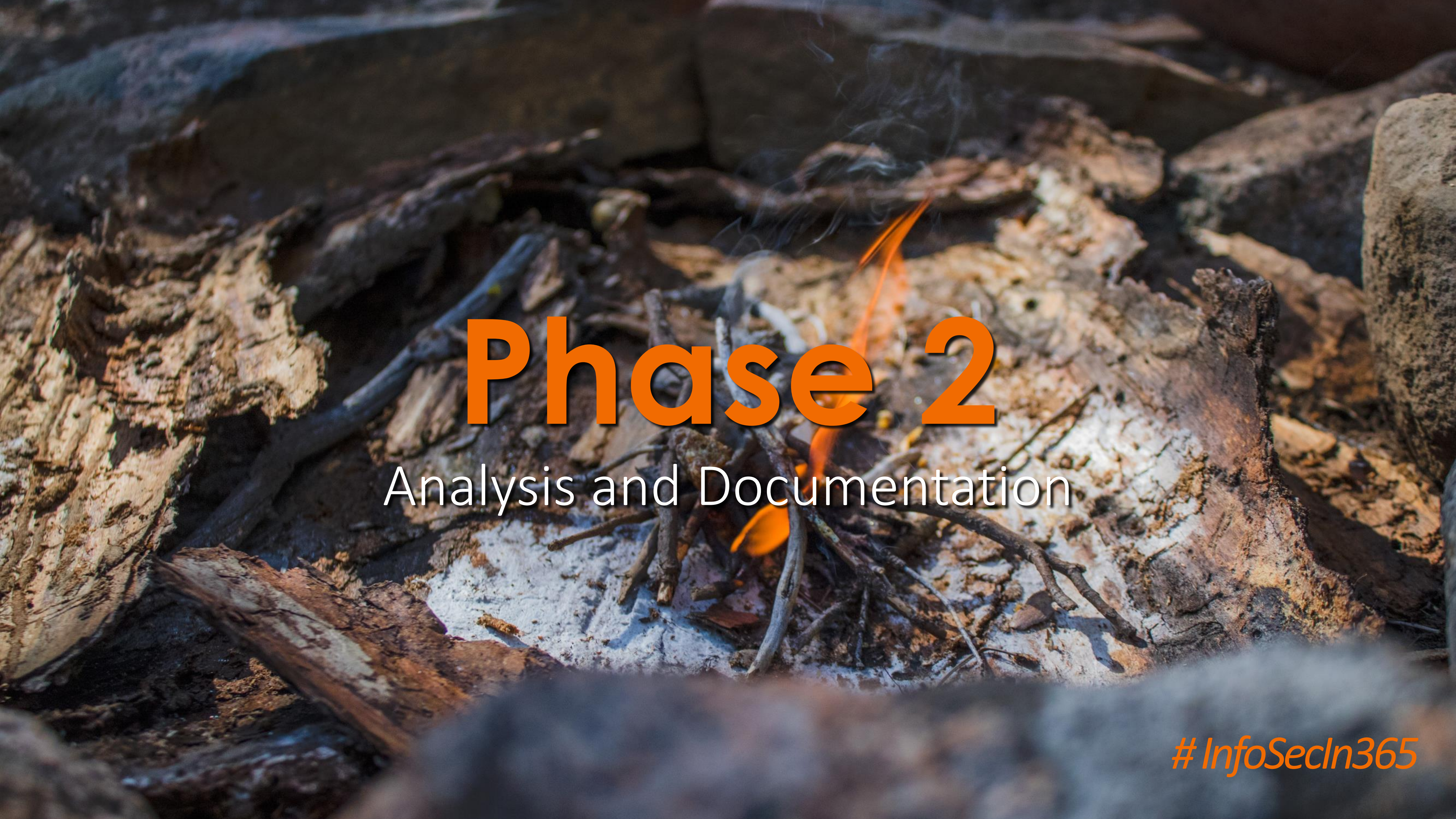

Phase 2

Analysis and Documentation

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Vulnerabilities

- Assessment
  - Implement prior to patching to show reduction in vulns from patching
  - OpenVAS (with VulnWhisperer (ELK))
  - Generate differential reports
  - Shodan lookup for external ports
- Patching
  - Automated for endpoints, manual for servers
  - Gather team from IT for server patching
  - WSUS can be high-maintenance if you don’t have experience
  - Every MS(S)P will have a patching software

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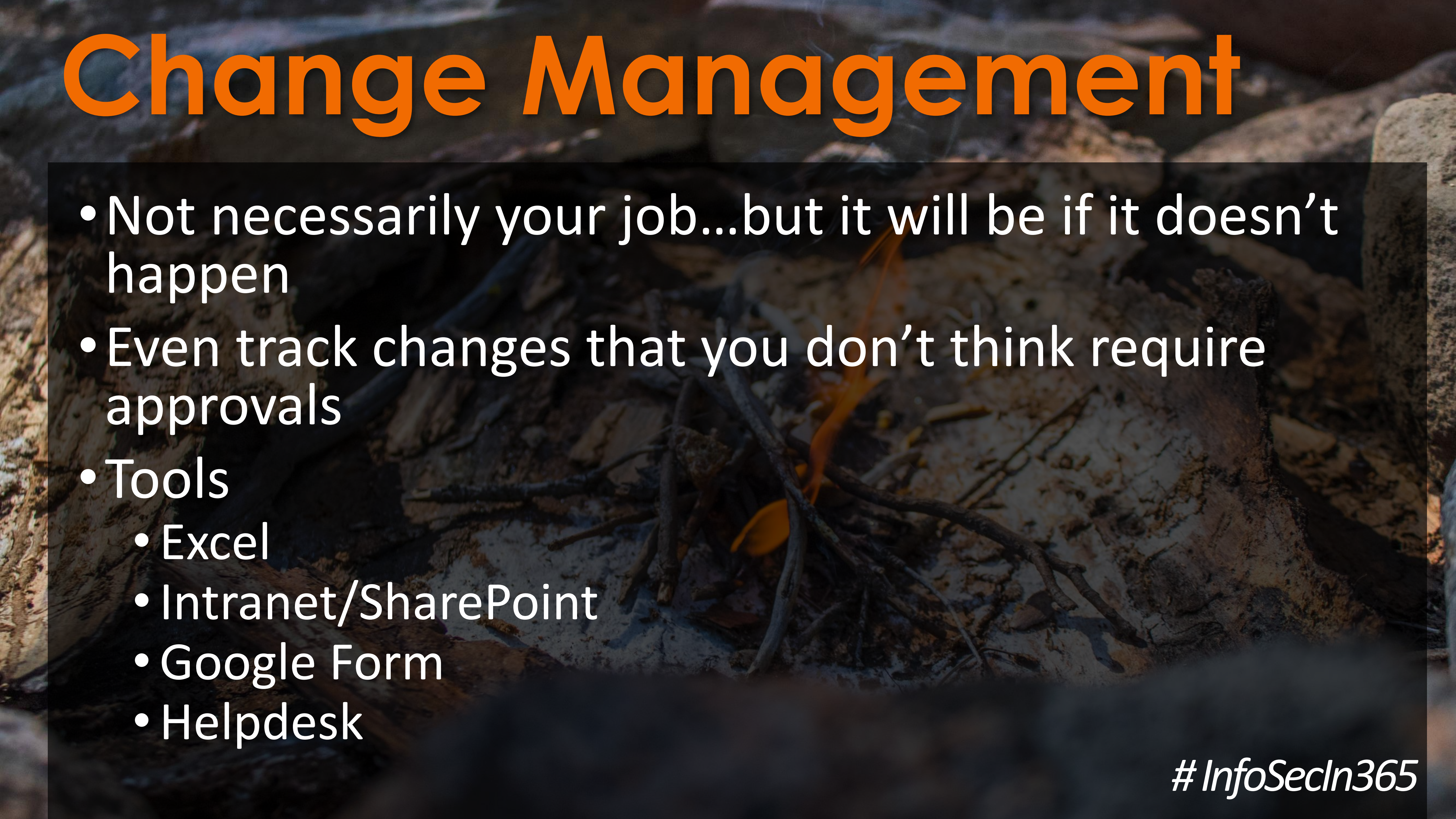
Incident Response Prep

- Policies/procedures
- Breach Reporting
  - At what point
  - Compliance requirements?
- Establish CERT Team
  - Legal/HR/PR/Management/Infosec/IT



Change Management

- Not necessarily your job…but it will be if it doesn’t happen
- Even track changes that you don’t think require approvals
- Tools
  - Excel
  - Intranet/SharePoint
  - Google Form
  - Helpdesk

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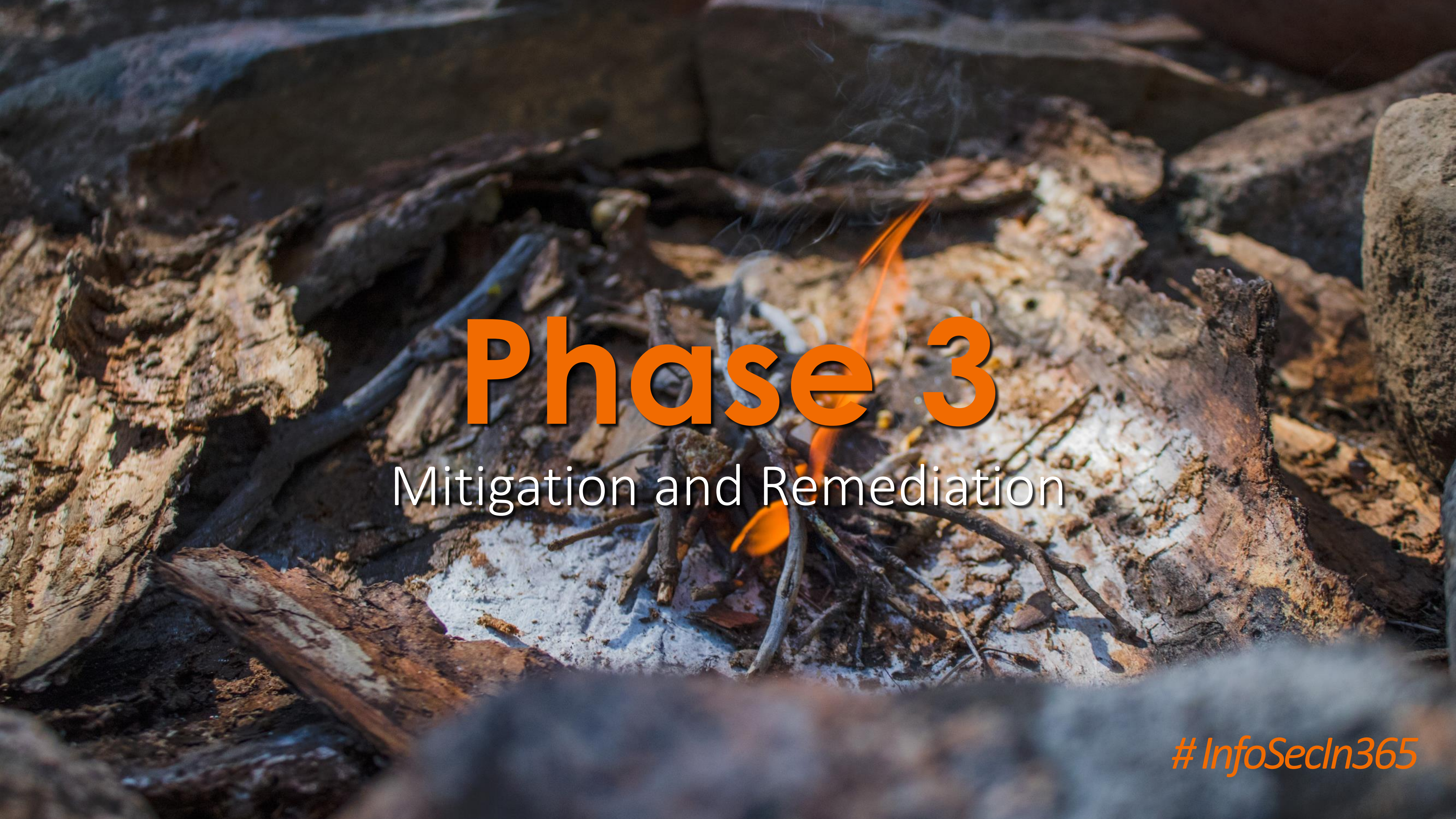

Phase 3

Mitigation and Remediation

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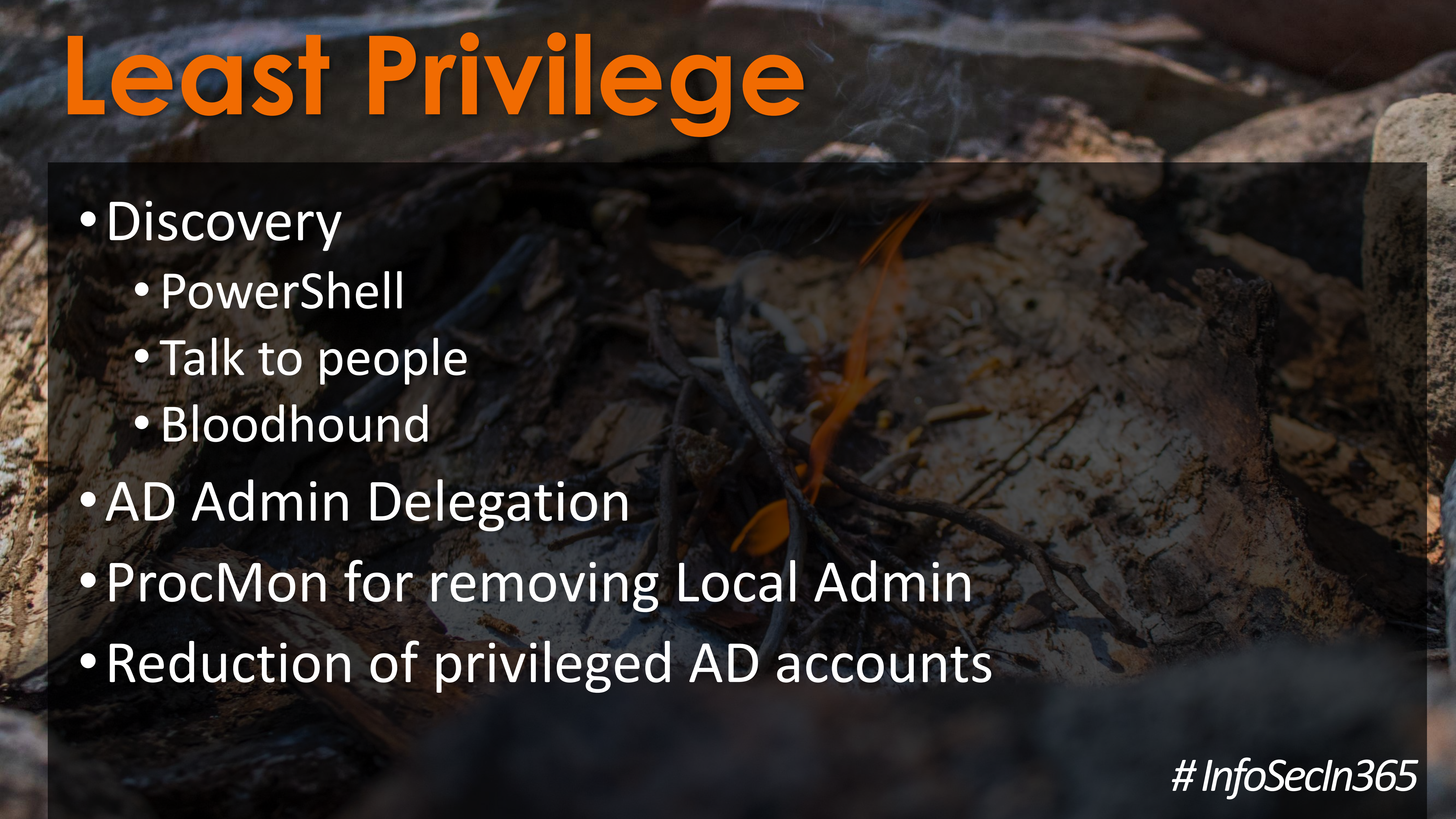
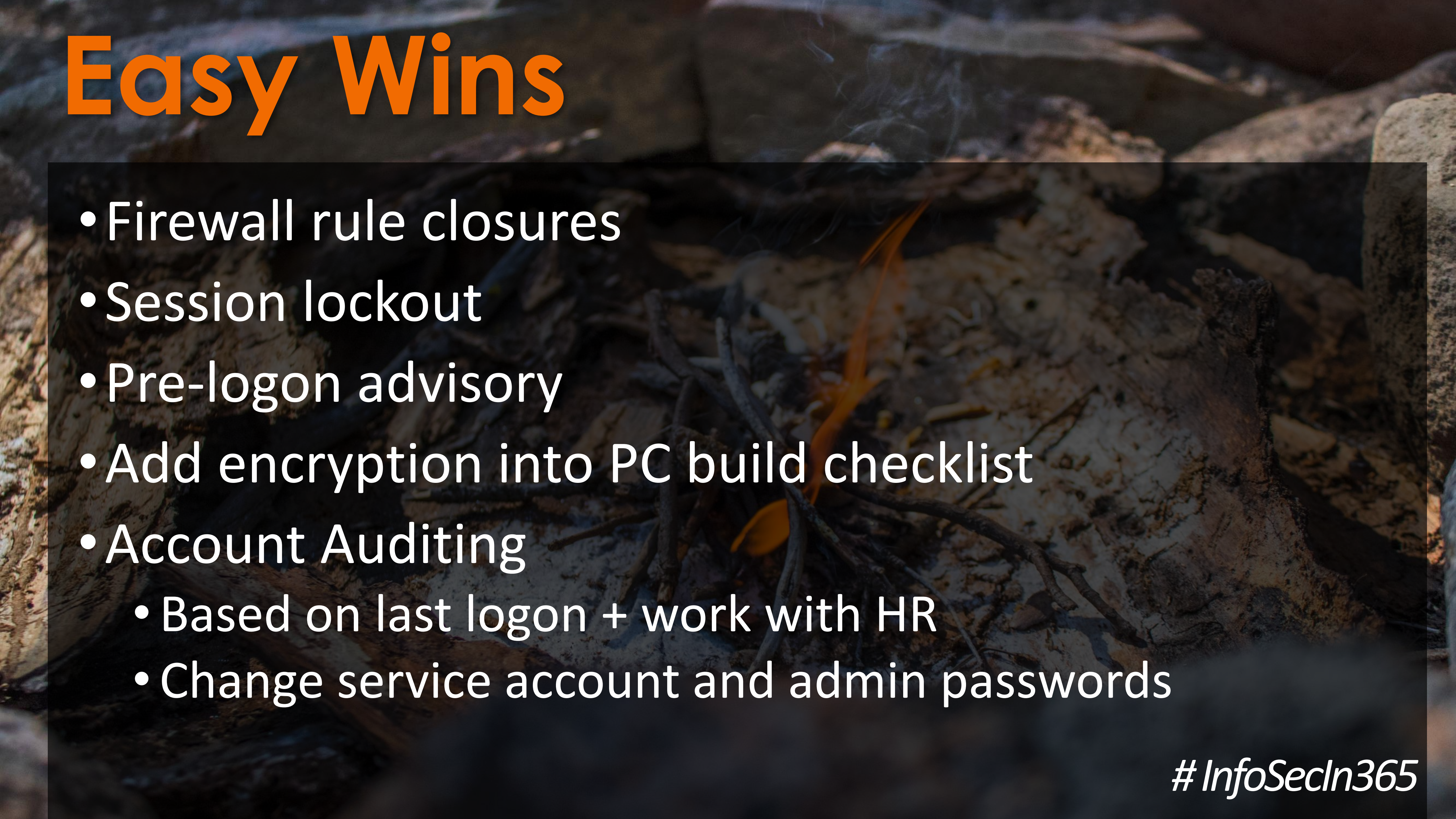


Least Privilege

- Discovery
  - PowerShell
  - Talk to people
  - Bloodhound
- AD Admin Delegation
- ProcMon for removing Local Admin
- Reduction of privileged AD accounts



Easy Wins

- Firewall rule closures
- Session lockout
- Pre-logon advisory
- Add encryption into PC build checklist
- Account Auditing
  - Based on last logon + work with HR
  - Change service account and admin passwords

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Replacement/Renewals

- Good chance to increase security with easy wins
- NGAV
  - Does more than just AV, not much more $
  - “Poorman’s App Whitelisting”, Removable Media Control
  - Bit of an upfront effort
- Network refresh
- WAPs with RADIUS
- LAPS

Phase 4

Looking Forward

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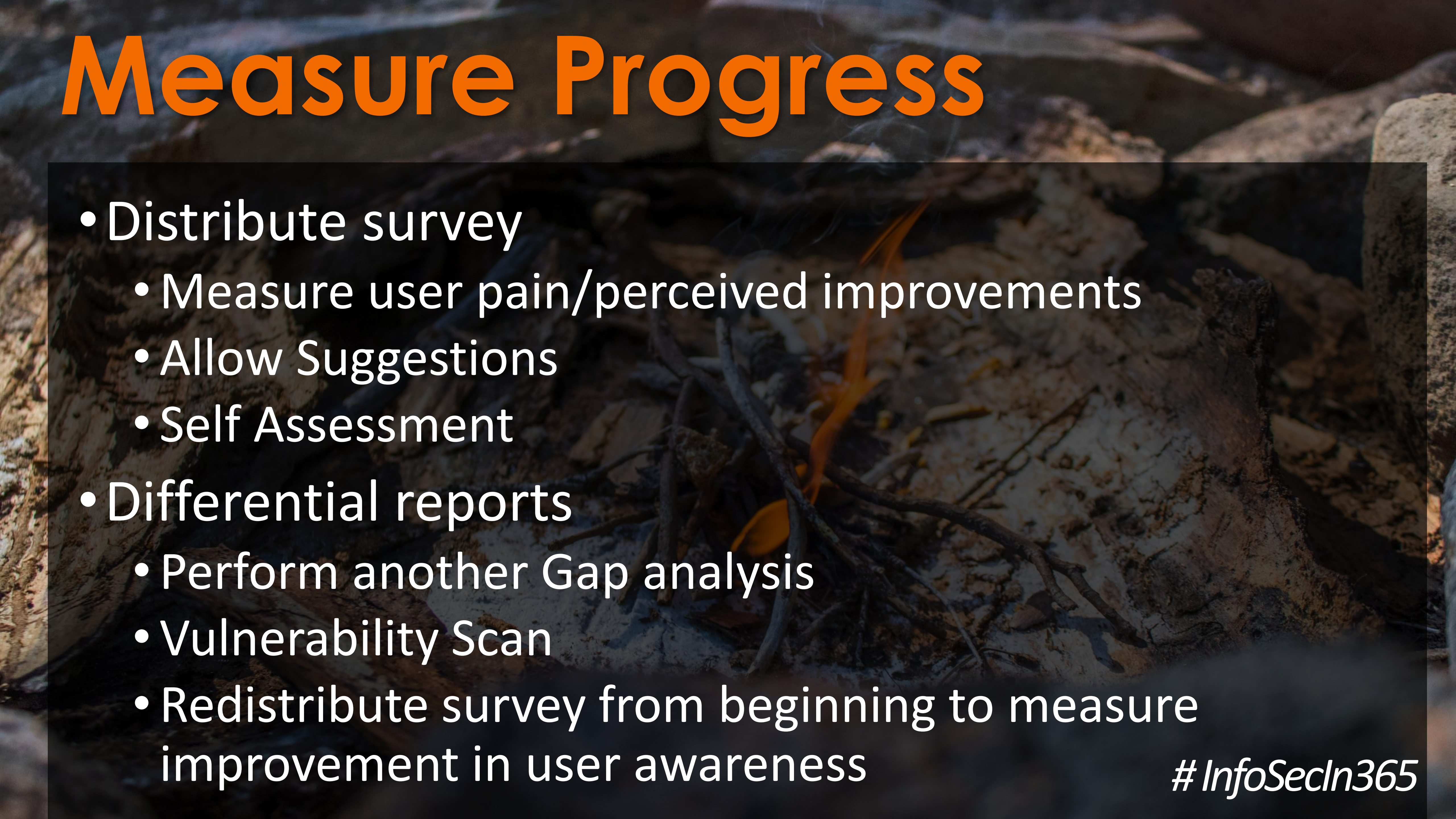

Measure Progress

- Distribute survey
  - Measure user pain/perceived improvements
  - Allow Suggestions
  - Self Assessment
- Differential reports
  - Perform another Gap analysis
  - Vulnerability Scan
  - Redistribute survey from beginning to measure improvement in user awareness

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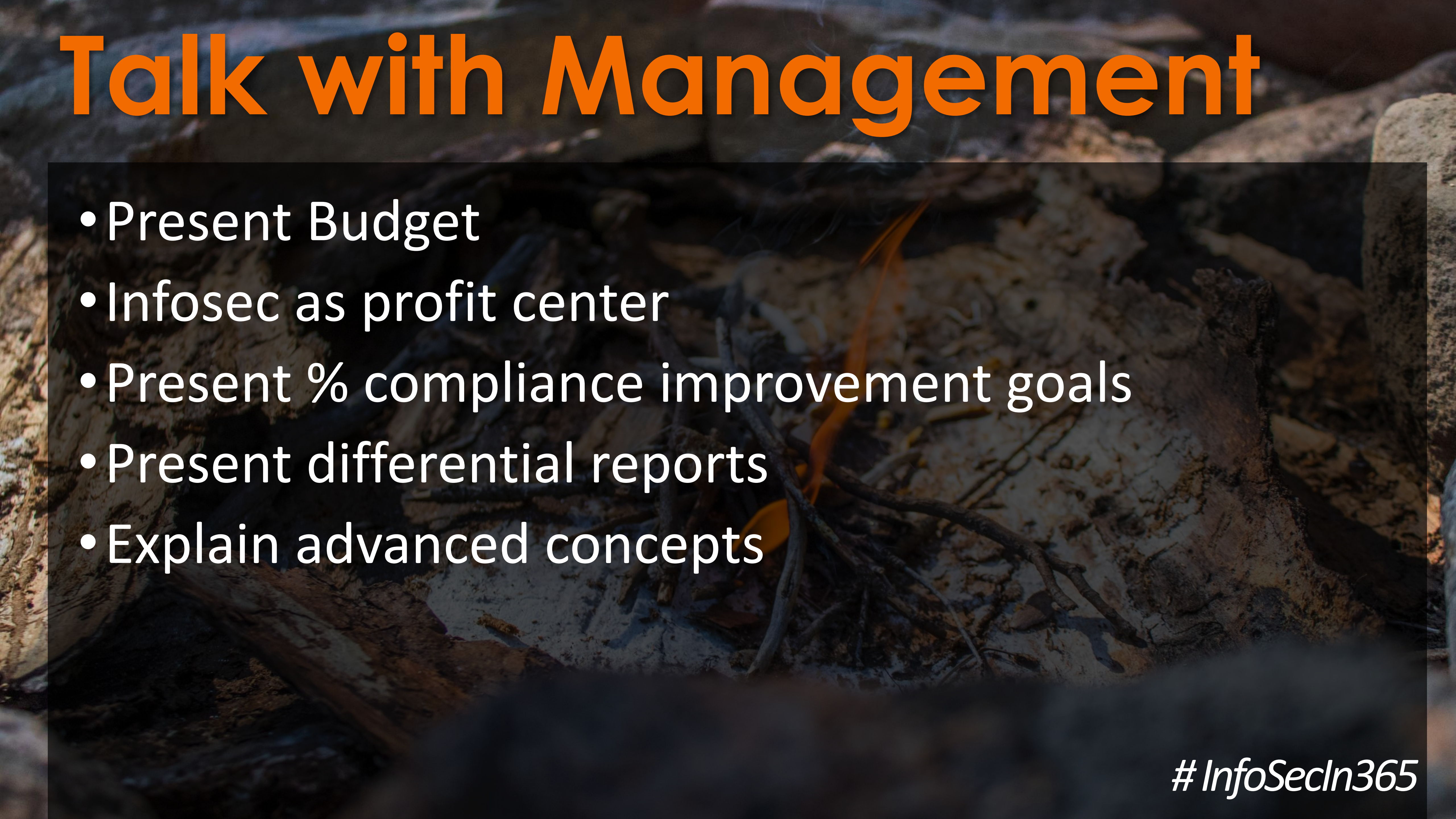
Budget Preparation

- Set Priorities based upon findings in last slide
- Re-evaluate threat model, risk assessment
- Revisit MSSP for SOC
- Suggestions
  - MFA
  - Network overhaul (chances are you have a flat network with L2 switches)
  - Suggestions from Renewals/Replacements
  - Principle of least Functionality / Hardening
  - SIEM
  - (N/H)I(D/P)S

Talk with Management



- Present Budget
- Infosec as profit center
- Present % compliance improvement goals
- Present differential reports
- Explain advanced concepts

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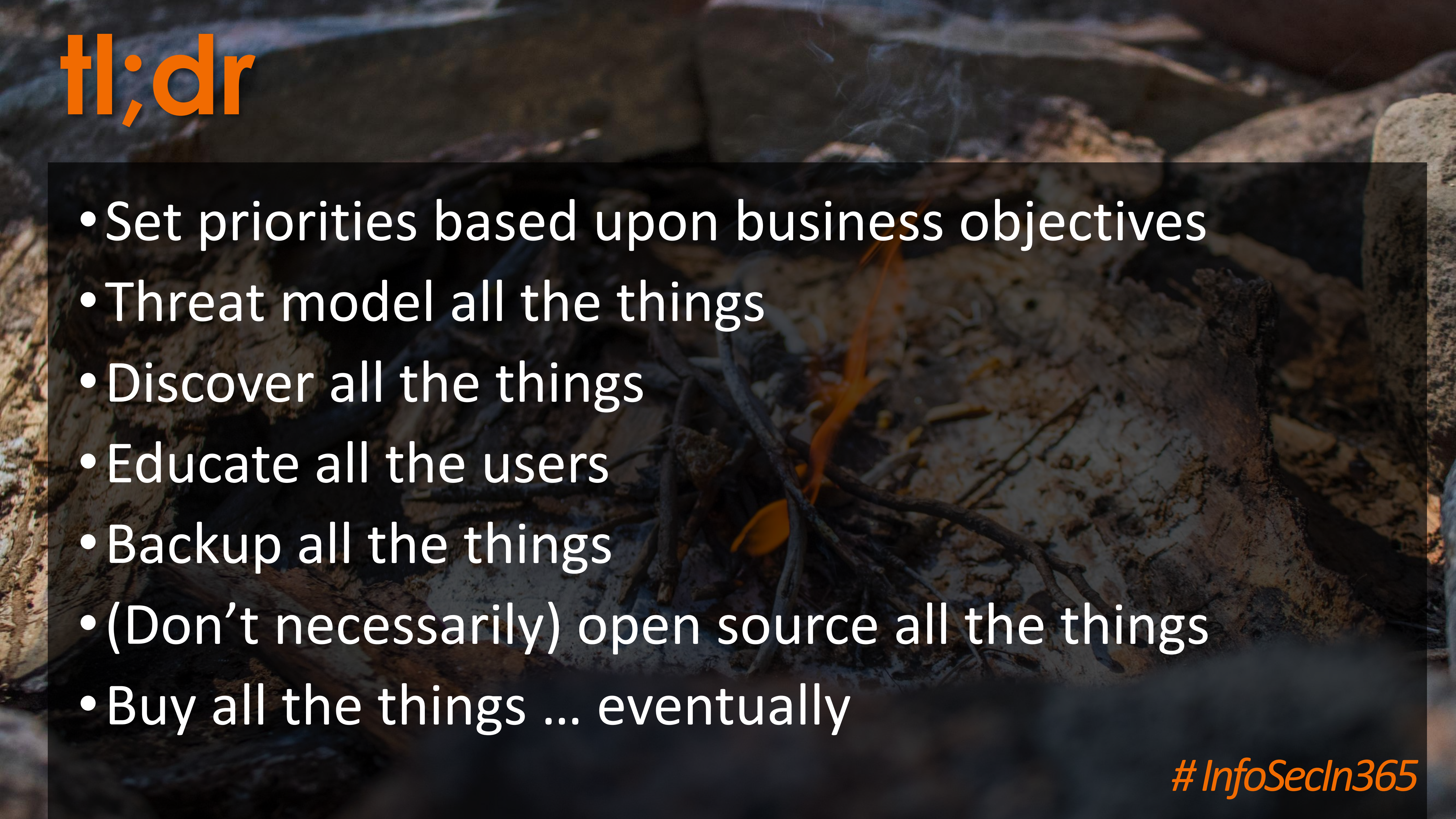

tl;dr

- Set priorities based upon business objectives
- Threat model all the things
- Discover all the things
- Educate all the users
- Backup all the things
- (Don’t necessarily) open source all the things
- Buy all the things … eventually

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Appendix: Resources

- Framework
  - ISO 27000 *($)*
  - NIST CSF
  - CIS Controls (formerly SANS Top 20)
- Phishing Simulation
  - Knowbe4 *($)*
  - PhishMe *($)*
  - SANS Securing the Human
- Surveys/Quizzes
  - StaySafeOnline.Org
- Asset Discovery
  - NMAP
  - Vulnerability Assessment System (VAS)
  - Active Directory
  - Microsoft Baseline Configuration Analyzer

- Threat Modeling
  - US-Cert
  - Threat Exchange
- User Education
  - StaySafeOnline.org
  - SANS Securing the Human
- Security Policies
  - SANS
  - Charles Cresson *($)*

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Appendix: Resources (cont.)

- SIEM
  - Elastic Stack
- Vulnerability Assessment
  - OpenVAS + VulnWhisperer
- NIDS
  - Bro
  - Suricata / Snort
- HIDS
  - Osquery
  - OSSEC / Wazuh
- Incident Response
  - *The Hive*
- Patching
  - WSUS
  - Comodo
  - Rudder
- AD Discovery
  - Bloodhound
- Applocker
  - AaronLocker
- Symon
  - SwiftonSecurity
- Red Team Simulation
  - Red Canary Atomic Red Team

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Slides
homebrewedsec.com/talks/

Questions
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