Site Reliability Engineering Foundation℠ Course

Course Description:

The course highlights the evolution of SRE and its future direction, and equips participants with the practices, methods, and tools to engage people across the organization involved in reliability and stability evidenced through the use of real-life scenarios and case stories. Upon completion of the course, participants will have tangible takeaways to leverage when back in the office such as understanding, setting and tracking Service Level Objectives (SLO's) and Service Level Indictors (SLI's).

DevOps Institute® and PeopleCert® provides the course curriculum, and the exam is provided through PeopleCert®.

Course Objectives: Attendees acquire an understanding of:

- ✓ The history of SRE and its emergence at Google
- ✓ The inter-relationship of SRE with DevOps and other popular frameworks
- ✓ The underlying principles behind SRE
- ✓ Service Level Objectives (SLO's) and their user focus
- ✓ Service Level Indicators (SLI's) and the modern monitoring landscape
- ✓ Error budgets and the associated error budget policies
- ✓ Toil and its effect on an organization's productivity
- ✓ Some practical steps that can help to eliminate toil
- ✓ SRE tools, automation techniques and the importance of security
- ✓ Anti-fragility, our approach to failure and failure testing
- ✓ The organizational impact that introducing SRE brings

Audience: The primary audience for this course includes the following IT Professionals.

- Anyone starting or leading a move towards increased reliability
- Anyone interested in modern IT leadership and organizational change approaches
- Business Managers, Business Stakeholders, Change Agents, Consultants, DevOps Practitioners
- IT Directors, IT Managers, IT Team Leaders, Product Owners, Scrum Masters, Software Engineers
- Site Reliability Engineers, System Integrators, and Tool Providers

Course Length: 16 hours

Prerequisites: An understanding and knowledge of common DevOps terminology and concepts and related work experience are recommended.

Course Materials:

- ✓ Instructor-led presentation, group exercises, and case studies
- ✓ Learner Workbook (286-pg, 423 slides) with study aids, quizzes, and assignments
- ✓ Sample exams and exam preparation (excellent post-class reference)
- ✓ Official course curriculum provided by PeopleCert (16 PDUs earned)
- ✓ PeopleCert Exam Voucher included (with Certificate and Digital Badge)

Certification Exam:

Learners who choose to certify in this DevOps discipline will be equipped to earn the **Site Reliability Engineering Foundation Certification** by achieving a passing score (65%) on the 60-minute exam, consisting of 40 multiple choice questions. Participants are provided with an **exam voucher** so they can schedule the exam at their convenience after the course.

Course Outline: Site Reliability Engineering Foundation v1.2

Module 1: SRE Principles and Practices
- What is Site Reliability Engineering?
- SRE & DevOps: What is the Difference?
- SRE Principles & Practices

Module 2: Service Level Objectives & Error Budgets
- Service Level Objectives (SLO's)
- Error Budgets
- Error Budget Policies

Module 3: Reducing Toil
- What is Toil?
- Why is Toil Bad?
- Doing Something About Toil

Module 4: Monitoring and Service Level Indicators
- Service Level Indicators (SLI's)
- Monitoring
- Observability

Module 5: SRE Tools and Automation
- Automation Defined
- Automation Focus
- Hierarchy of Automation Types
- Secure Automation
- Automation Tools

Module 6: Anti-Fragility and Learning from Failure
- Why Learn from Failure
- Benefits of Anti-Fragility
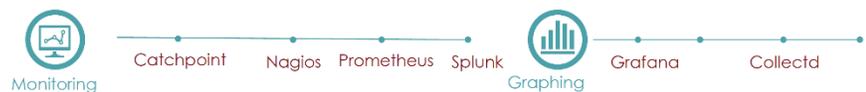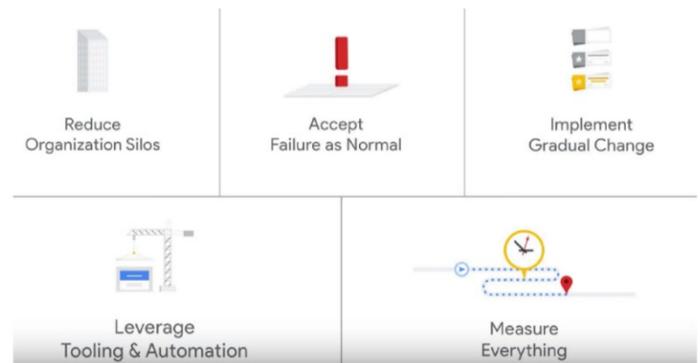- Shifting the Organizational Balance

Module 7: Organizational Impact of SRE
- Why Organizations Embrace SRE
- Patterns for SRE Adoption
- On-Call Necessities
- Blameless Post-Mortems
- SRE & Scale

Module 8: SRE, Other Frameworks, The Future
- SRE & Other Frameworks
- The Future

Five Key Pillars of SRE Success

Reduce Organization Silos

Accept Failure as Normal

Implement Gradual Change

Leverage Tooling & Automation

Measure Everything

Monitoring — Catchpoint — Nagios — Prometheus — Splunk — Graphing — Grafana — Collectd

catchpoint — Nagios — Prometheus — splunk> — Grafana — collectd

Logging — Logstash — Rsyslogd — Collectd — Alerting — Pager duty

logstash — rsyslog — collectd — pagerduty

Ensuring Secure Automation

Commit ID: 113 Committer: jdoe — Build — Run Unit Tests — Code Analysis — Create Test Env — Deploy Code — Load Test Data — Run Tests

Create Pre-Prod — Deploy Code — Run Perf Test — Run Security Test — Check Monitors

Create Prod — Prod deploy — Run Tests — Run NFT's — Check Monitors

Rusty Robinson
Founder & President
Mobile: 760.715.5187
rusty@performance360.net

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