STAGES OF PRACTICE IN SITE RELIABILITY ENGINEERING

Stages of Practice

Shu	(obey/basics)	守
Ha	(detach/ready to learn)	破
Ri	(separate/intuitive)	離

Stages of Practice

Innocent

Shu (obey)	Novice
	Beginner
	Competent
Ha (detach)	Proficient
Ri (separate)	Master

Expert/Researcher

Signposts of SRE Practice

- Incident Response
- Postmortems
- Incident Prevention
- Service Level Handling:
  Indicators, Objectives, Agreements (IOAs)
- Monitoring
- Capacity Planning and Forecasting
- Performance Management

Signposts:
Incident Response

(*hat tip to J. Paul Reed*)

Shu Signposts: Incident Response

Novice	• “Alarmed” by incidents • Primarily external sourced with inconsistent response
Beginner	• “Fears” incidents • Effective response requires specific people
Competent	• “Aware” that incidents are normal • Well defined handling process

Ha-Ri Signposts: Incident Response

Proficient	• "Accept" incidents as a normal • Some inter-team coordination planning
Master	• "Embrace" incidents as learning experiences • Well documented processes and procedures with learning inputs to the process

Signposts: Postmortems

Shu Signposts: Postmortems

Novice	• “Blameful”, only for crisis incidents • Looking for a scapegoat
Beginner	• Only performed for major incidents • Looking for a cause with a focus on mistakes
Competent	• More common, starting to look past blaming • Focus on improving local processes

Ha-Ri Signposts: Postmortems

Proficient	• “Blameless”, used consistently • Action items feed back to improve systems & processes
Master	• Used to derive “meta”-learnings • Applying learnings across the system

Signposts:
Incident Prevention

(*hat tip to J. Paul Reed*)

Shu Signposts: Incident Prevention

Novice	• Focus on remediation (docs & metrics) for manually-identified, static, contributory causes
Beginner	• Documentation done to an “acceptable” level • Static & action-based causes recognized
Competent	• Focus on team response to incidents, maintaining docs

Ha-Ri Signposts: Incident Prevention

Proficient	• Early phases of chaos engineering - scheduled • Limited randomized chaos engineering
Master	• Chaos engineering as a tool to manage to an SLO • Focus on general hygiene of operational environment

Signposts:
Service Level Handling
SLIs / SLOs / SLAs

Shu Signposts: SL[IOA]s

Novice	• Externally imposed (SLA), if any • On paper, not necessarily measured • May be manually calculated for contractual needs
Beginner	• Recognizes the difference in these terms • Measures “easy” things
Competent	• Defined and measured primary characteristics • Measures internal SLOs (80+%), not just contractual performance

Ha-Ri Signposts: SL[IOA]s

Proficient	• Well developed cascade of measures • Historical record and correlation to events
Master	• Meaningful measures throughout the system

Signposts: Monitoring

Shu Signposts: Monitoring

Novice	• No baseline metrics established
Beginner	• “OS level” or “out of the box”, inconsistent monitoring • Partial baselines being developed
Competent	• Consistent baseline monitoring across entire system • Able to determine statistical anomalies

Ha-Ri Signposts: Monitoring

Proficient	• Thorough instrumentation of all service components • Able to correlate internal and external measures
Master	• Data observable upon demand • Automated correlation and anomaly detection

Signposts: Capacity Planning and Forecasting

Shu Signposts: Capacity Planning and Forecasting

Novice	• Frequently running out of resources • Throw hardware at the problem
Beginner	• Reactive, manual and/or time-consuming • Some metrics, but incomplete
Competent	• Able to identify and react to danger situations before crisis • Coverage of the most critical 20-50%

Ha-Ri Signposts: Capacity Planning and Forecasting

Proficient	• Nearly complete coverage • Able to reliably predict capacity in the short term (1+ purchase cycles) • Established methods for new service/feature handling
Master	• Able to reliably predict capacity 3-4 purchase cycles out

Signposts:
Performance Management

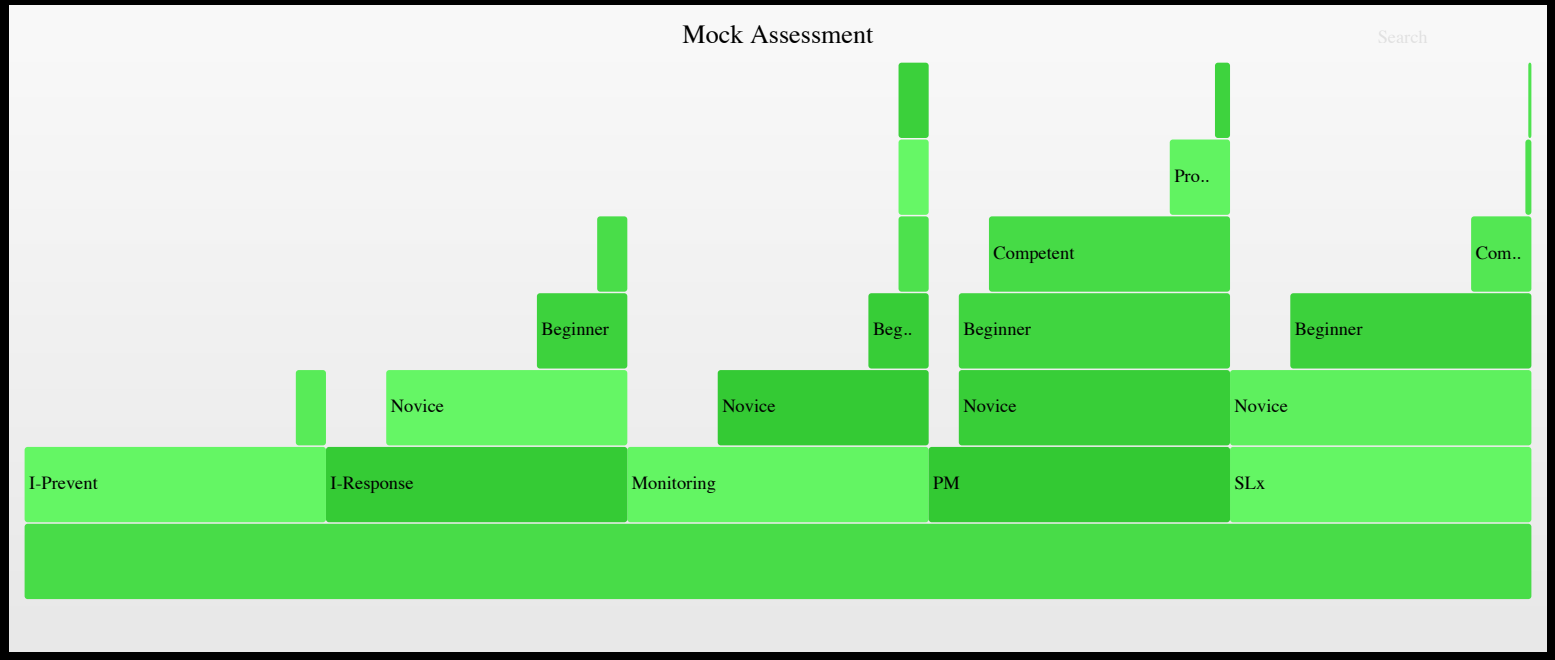
Shu Signposts: Performance Management

Novice	• “The site is up, isn’t that good enough?”
Beginner	• Selective monitoring
Competent	• Comprehensive monitoring, but still reactive on regressions

Ha-Ri Signposts: Capacity Planning and Forecasting

Proficient	• Able to prevent regressions through pre- release analysis/modeling/validation • Initial “large market” segmentation
Master	• Finely granular performance monitoring and management

Assessing Your Organization's Level of Practice



Other Potential Areas to Evaluate

- Observability Tooling & Capabilities
- Error Budget Definition and Usage
  - Continuous Budget Tracking (vs. binary Bang-bang handling)
- Change Management Practices
- Full Service Lifecycle Reliability:
  Do Your Services “Plan for Retirement”?

Even More Potential Areas to Evaluate

- New Services: Intro to Stability Arc
- Toil Fraction
- Oncall Sustainability
  - Ryan Franz (Etsy): Mean Time to Sleep (MTTS)

Each *'9'* will cost you more than the one before it...

Org-wide Practice Adoption ?

Practices Under Pressure?

Will *Change* Ever Stop?

The root cause for both the functioning and malfunctions in all complex systems is impermanence (…all systems are changeable by nature). Knowing the root cause, we no longer seek it, and instead look for the many conditions that allowed a particular situation to manifest. We accept that not all conditions are knowable or fixable.

– Dave Zwieback *Beyond Blame*

. . . and that's a *good* thing

. . . the real story . . . goes on forever . . .
every chapter is better than the one before.

Continuing the conversation. . .

Twitter: @DrKurtA

LinkedIn **https://linkedin.com/in/kurta1**