What is Pinterest?

The visual bookmarking tool that helps you discover and save creative ideas.

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Software v. Service
Software v. Service

- Stable branches
- Drivers and configurations
- Support matrix
- Dependency versions
- Developers support their own service
  - On call rotation
  - Aligns incentives
  - Monitoring & alerting built in from day one
- Testing against production traffic
SRE at Pinterest
the worlds most intense pit crew
changing tires while driving at 100 mph!
What do SREs focus on?
Operational Maturity

- Initial (chaotic, ad hoc, individual heroics) - the starting point for use of a new or undocumented repeat process.
- Repeateable - the process is at least documented sufficiently such that repeating the same steps may be attempted.
- Defined - the process is defined/confirmed as a standard business processes.
- Managed - the process is quantitatively managed in accordance with agreed-upon metrics.
- Optimizing - process management includes deliberate process optimization/improvement.
Operational Excellence

Availability

Efficiency

Performance

Developer Productivity
Operational Excellence

Software Engineering
- Availability
- Efficiency
- Performance
- Developer Productivity

Infrastructure Engineering

Process Engineering
- Resiliency features
- Monitoring & SLAs
- Incident Management
- Runbooks

- Effective Utilization
- Efficiency improvements
- Capacity Management

- Site speed & latency
- Load / Redline testing

- Repeatable deploys
- Automation
- Change management
Visibility

Insight into the system
Visibility

- **Data Driven**
  - Cornerstone for many things we do
    - Measure and enforce SLA (Service Level Agreement)
    - Debug issues
    - Capacity planning
  - Time series data - TSDB
  - Metrics
    - System
    - Service
    - Dependencies
    - Latencies
  - Alerting
  - ELK stack for real time log collection
Deployments
Deployment Requirements

- No impact to end user
- Change history
- Easy
Staging and Canary

Canary in a Coal mine.
Rabbit in a Sarin gas plant
Canary vs Staging
Teletraan
deploy system
Teletraan

*Features*

- Rollback
- Hotfix
- Rolling deploy
- Staging and testing
- Visibility & Usability
Teletraan

Design

- client-server model
- PRE/POST-DOWNLOAD
- PRE/POST-RESTART
- RESTART
- RBAC

Figure 1. Teletraan design.
Teletraan

Advanced Features

- Pause/Resume
- Acceptance Testing
- Auto Deploy
- Autoscaling

Auto promote workflow:

1. Test -> Staging
2. Test -> Canary
3. Test -> Production
Postmortems

Learn from our mistakes
Postmortems

- **Blameless**
- Incident Manager
- Impact
- Outage Type
- Method of Detection
- Timeline
- Root Cause
- Restoration Details
- Actionable Items
Production Readiness Review

Pre-mortem?
Production Readiness Review

- Dependencies
- Define an SLA
- Alerting
- Capacity planning
- Testing
- On call rotation
- Decider to turn feature off if needed
- Incremental launch plan
- **Rate limiting**
Public Cloud

Issues
Public Cloud

*Issues*

- “If you get an **InsufficientInstanceCapacity** error when you try to launch an instance, AWS does not currently have enough available capacity to service your request.”
  - Cloud is not infinite
  - Reserved instances
  - Capacity planning
- **RequestLimitExceeded**: “The maximum request rate permitted by the Amazon EC2 APIs has been exceeded for your account.”
  - Includes **DescribeInstances**
  - Use internal mirror (powered by elasticsearch)
- Noise Neighbors
- Rightsizing
- Ownership
Open Sourced Tools
Open Sourced Tools

- **mysql-utils**
  - MySQL Management Tools for the Cloud

- **thrift-tools**
  - thrift-tools is a library and a set of tools to introspect Apache Thrift traffic

- **secor**
  - Secor is a service implementing Kafka log persistence

- **pymemcache**
  - A comprehensive, fast, pure-Python memcached client

- **pinrepo**
  - Artifact Repo

- **Teletraan**

More at: [https://github.com/pinterest](https://github.com/pinterest)