Who Watches the Watchers? A Jenkins Journey

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Open Source

- Elastic is an Open Source company
- Contribute back to the FOSS:
  - Using weekly releases
  - Using latest plugin versions
- Why?
  
  We like to be on the edge
Observability

- Observability, ObservaBLT, o11y
- Logs + Metrics + Monitoring
- Application Performance Monitoring (APM)
- Machine Learning (ML)
- Alerting
- Dashboards

- Can we observe our CI/CD?
Problem Statement
Problem Statement

- More than 80 repositories.
- ~10 programming languages
- Different build tools
- Different package and distribution systems
- ~25 OS versions supported
- Different architectures
- ~50 integrations with tools, systems and services.
Solutions
Standardisation

- One CI/CD to rule ‘em all (Jenkins)
- Declarative pipeline
- Multibranch pipeline jobs
- Delegate build responsibility on build tools
- One click tag-based releases
Don’t repeat yourself

- Identify common processes and patterns
- Shared library (~150 steps)
Everything as Code

- Infrastructure
- CI/CD Jobs definition
- Local test environments
- Ephemeral test environments
- Release/Dev/Dev-next test environments
- Docs as Code
Test ‘em all

- **Jenkins Shared Library:**
  - Unit/Functional Testing
  - Test the library itself

- **Infrastructure**
  - Docker/Packer images
  - Ansible deployments
  - Helm charts

- **pre-commit in the git repositories**
- **Scan tools**
Communication

- Centralized contributor experience in one place
- Massage the build, log and test results
<table>
<thead>
<tr>
<th>Pull request</th>
<th>Title</th>
<th>Author</th>
<th>Label</th>
<th>Projects</th>
<th>Milestones</th>
<th>Reviews</th>
<th>Assignee</th>
<th>Sort</th>
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</thead>
<tbody>
<tr>
<td>#23496</td>
<td>Cherry-pick #23496 to 7.x: Agent fetching DBus service PID fix</td>
<td>Team-Agent</td>
<td>Team/Ingest Management</td>
<td>backlog</td>
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<tr>
<td>#23479</td>
<td>[Filebeat] add encode form and decode ndjson to httpjson input</td>
<td>Filebeat</td>
<td>Team/Security-External Integrations</td>
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<td>#23094</td>
<td>Cherry-pick #23094 to 7.x: Bug: Set netflow event.created to use current timestamp</td>
<td>Team/Security-External Integrations</td>
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<td>[_Msk]</td>
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<td>#23418</td>
<td>Cherry-pick to 7.11: docs: Prepare Changelog for 7.10.2 (#23418)</td>
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<td>backlog</td>
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Centralised knowledge

- Ingest all the CI/CD events in Elasticsearch
- Centralized dashboards in Kibana
Centralised knowledge

We use this folder to document all the things about the continuous integration.

- CI requirements for the observability projects.
- CI common use cases for the observability projects.
- Accessing Jenkins instances
- Pipelines template
- Jenkins infrastructure
- Jenkins jobs
- Jenkins trigger jobs
- Jenkins Build troubleshooting guide

### APM Projects

<table>
<thead>
<tr>
<th>Documentation</th>
<th>Build Dashboard</th>
<th>Flaky Dashboard</th>
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</thead>
<tbody>
<tr>
<td>CI for the apm-agent-dotnet</td>
<td>dashboard</td>
<td>flaky</td>
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<td>dashboard</td>
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<tr>
<td>CI for the apm-agent-rum-js</td>
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<td>flaky</td>
</tr>
<tr>
<td>CI for the apm-server</td>
<td>dashboard</td>
<td>flaky</td>
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**Beats Projects**
Centralised knowledge
Monitoring ‘em all with Elastic Stack
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Continuous Deployment

- Every successful merge generates binaries
- Environments for demos, testing and development
- Updated on daily basis
- ITs for snapshots on daily basis
- Dogfooding our Elastic Cloud platform (SaaS)
Continuous Deployment
Chaos Engineering

- Generate random incidents data
- Test specific scenarios
- Tune our analysis features
Future
Future

- Root cause analysis with Machine Learning
- No more UI interactions with the CI but Using GitHub for everything
- Standardise the observability as a solution for the CI. In our case Jenkins
Thank you!

https://github.com/elastic/apm-pipeline-library

https://www.elastic.co/blog/
https://www.flickr.com/photos/big-dave-diode
http://www.tmwallpaper.com/themepack-volkswagen.html
http://iameusawest.com/iame-engines/ka100cc.html
https://www.cgtrader.com/3d-models/aircraft/part/rs-25-space-shuttle-rocket-engine
https://www.dreamstime.com/automotive-engine-d-illustration-image145207557
http://www.todohobby.net/es/gasolina-4-tiempos/47315-motor-valach-r7-800-800cc.html
https://openclipart.org/detail/271364/stylized-cartoon-monkey