Four Key Metrics

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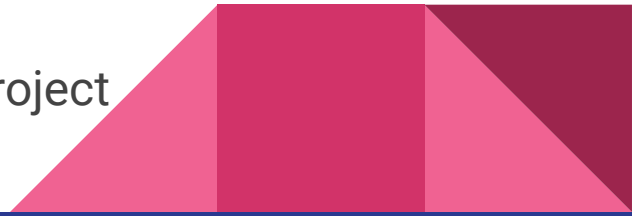
What are the Four Key Metrics?

- Means of measuring software delivery performance, identified by the DevOps Research and Assessment (DORA) team.

1. Lead Time
2. Deployment Frequency
3. Mean Time to Restore
4. Change Fail Percentage

- Based of principles which successfully measure delivery performance:
  - Focuses on global outcome
  - Focuses on outcome not output
- Four Keys open source project - way of measuring project



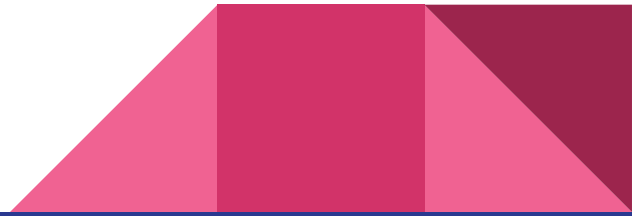
Delivery Lead Time

The time it takes to go from a customer making a request to the request being satisfied.

- Measured by time from commit to deployment
- Two parts:
  - Time it takes to develop
  - Time it takes to deliver
- Shorter times are favorable
  - Allow for faster feedback and course correction
  - Can fix things rapidly

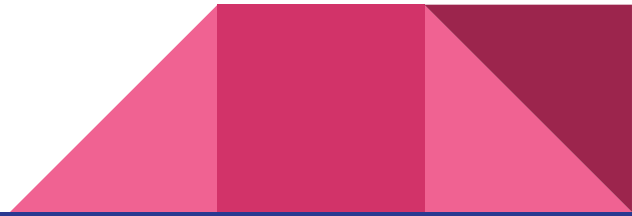
Lead Time Cont. (Development)

- Time spent designing and developing new products and services
  - This process is arbitrary, hard to tell where it stops or ends.
- May require design and implementation that has never been done before
- Time estimates are uncertain
- Outcomes are variable



Lead Time Cont. (Delivery)

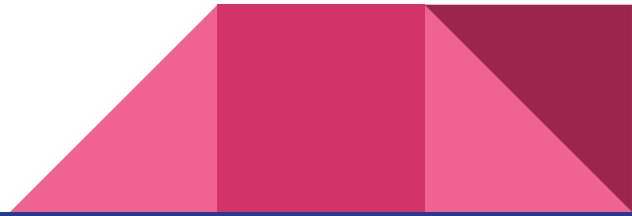
- Time building, testing, and deploying new services
- Enable flow from development to production
  - Done by standardizing work, reducing variability and batch sizes
- Cycle times should be well known and predictable
- Outcomes have low variability



Lead time

- Elite performers: less than one day
- High performers: between one day & one week
- Medium performers: between one week & one month
- Low performers: between one month & six months

Source: Accelerate: State of DevOps 2019 , Google



Deployment frequency

Successful software releases to production.

- Measured by how often the organization deploys code to production

- Batch of changes reduction:
  - Reduces cycle times
  - Promotes flow variability, which leads to feedback
  - Reduces risk, costs, overhead, schedule growth
  - Improves efficiency

Deployment frequency

- Elite performers: on demand (multiple deployments per day)
- High performers: between once per day/week
- Medium performers: between once per week/month
- Low performers: between once per month/every six months

Source: Accelerate: State of DevOps 2019 , Google

Mean time to restore

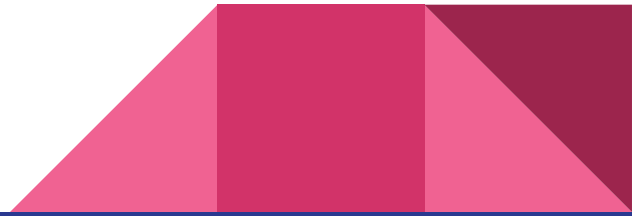
Time it takes for a service to bounce back from a failure really makes the difference.

- Measured by average time between bug report and bug fix deployment.
- Failure is inevitable
  - How quickly can service be restored?
- If short recovery time
  - More comfortable experimenting and innovating, improves business revenue
- Encourages to build robust systems.

Mean time to restore

- Elite performers: less than an hour
- High performers: less than one day
- Medium performers: less than one day
- Low performers: between one week/one month

Source: Accelerate: State of DevOps 2019 , Google



Change Fail Rate

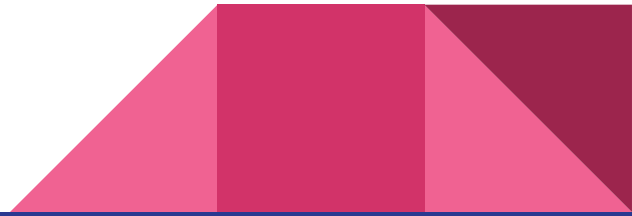
The percentage of deployments causing a failure in production.

- Link total count of deployments with incidents
  - Identify what constitutes a failed deployment
- The lower, the better
  - Shorter lead times correlated with reduction in change fail rates
- Failing fast
- Good practices
  - Continuous tracking
  - Automated development process

Change Fail Rate

- Elite, High and Medium performing teams: 0-15%
- Low performing teams: 46-60%

Source: Accelerate: State of DevOps 2019 , Google

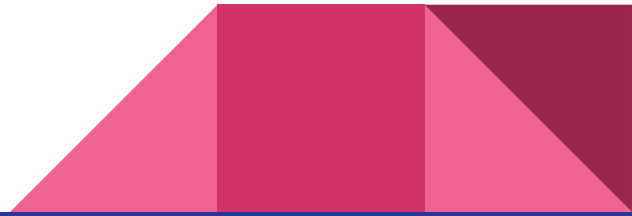


To summarize

- Deployment Frequency and Lead Time measure velocity
- Change Failure Rate and Time to Restore Service measure stability

- Using these metrics as a guideline will improve efficiency and effectiveness

- End goal achieved through continual improvement



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Questions?