

Monitoring

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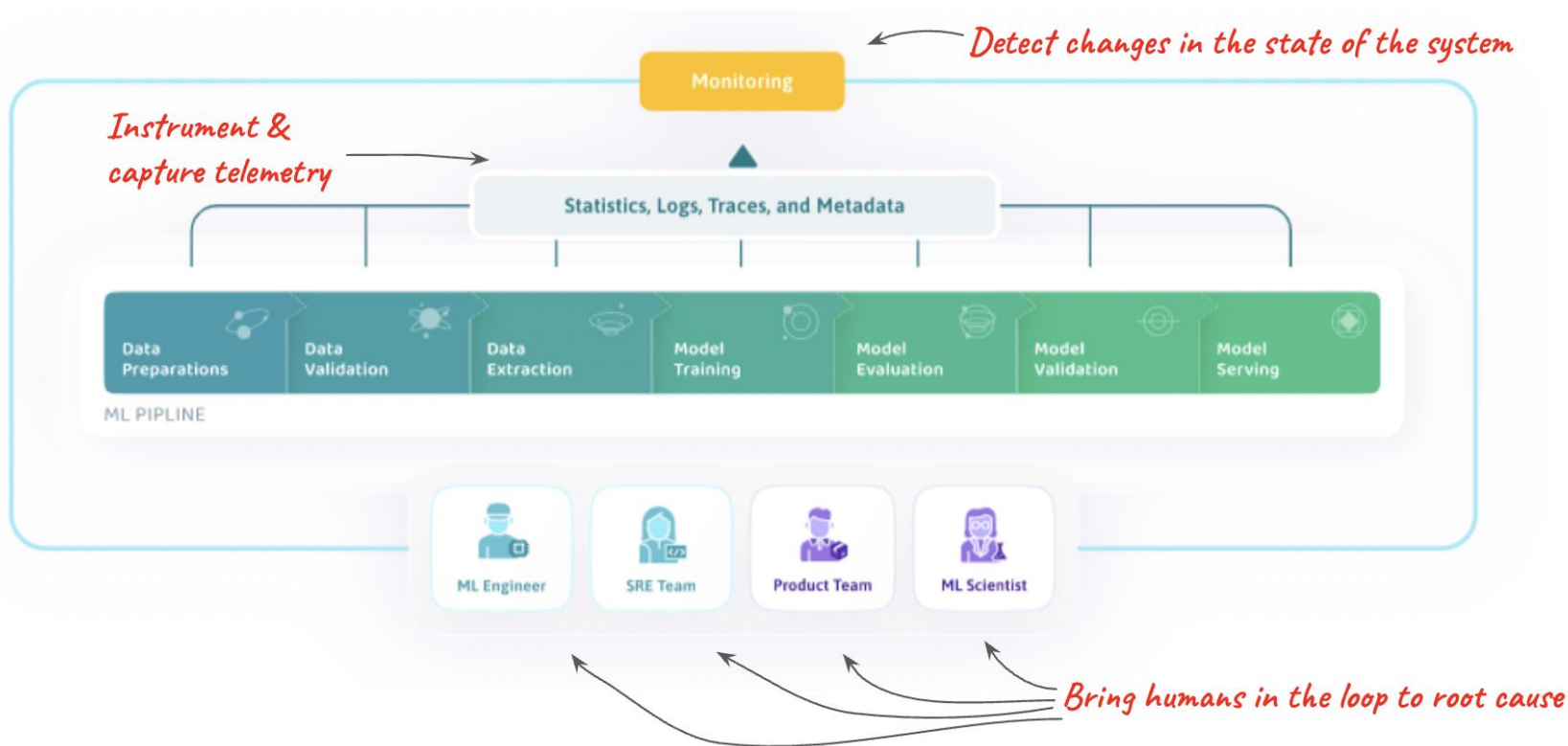
Announcements

- Next Lecture: Special lecture on entrepreneurship
 - Auditorium to be announced on Canva soon
 - 1pm for both bloques
 - I will still take attendance!!
- My class schedule for end of may

Monitoring

- Monitoring involves keeping track of important events and metrics so that anomalies, errors, and downtime are noticeable immediately.
- By monitoring events and metrics of running systems, developers can detect when these systems begin to deviate from normal behavior.
- Enables developers to catch problems quickly while these issues are still minor.
- Helps teams understand how their systems work and what their limitations are.
- Gives everyone who depends on a service or tool confidence that their service level agreement is fulfilled.

Monitoring



Metrics Monitoring

- **Metrics monitoring** involves identifying specific criteria for success and measuring the performance of the application in relation to these goals.
- Metrics are beneficial for reporting a system's health in aggregate, triggering alerts, and providing insights into how applications perform.
- Metrics might include:
 - memory use
 - requests per second
 - Queue depth
 - active connections
 - Errors

Good Monitoring: Hallmarks

- **Real-time analysis:** A good system will offer continuous monitoring with minimal latency or delay
- **Alert system:** Once a certain, problematic event takes place, a warning will be generated that will reach the indicated people.
 - Alerts configurable, so you may choose the event that triggers them
- **Notifications:** Notifications through different means (email, SMS, etc.) so that the message reaches the right people
- **Status charts:** Graphs or other comprehensible visualizations of the problem

Don't Cry Wolf

- “Crying Wolf” means alerting devs when there’s not actually a problem
- If your alert goes off twice per day, people will learn to ignore it.

Monitoring on the Cloud

- Many cloud providers offer built-in application and infrastructure monitoring.
 - Amazon CloudWatch
 - Google Cloud Monitoring,
 - Azure Monitor

Log Monitoring

- Log monitoring is the process of continuously monitoring logs for specific events or patterns to identify potential issues or problems.
- Check for increases in error logs coming from lines of code/programs
- E.g. log every time a message is dropped. If that's 1x per hour, great, if it jumps to 10x or 100x or 1000000x per hour, then alert the on-call

Monitoring

- Logging
 - Number of errors
- Response pings
 - heartbeat/health checks
- Latency
 - Check that responses or processing is under a limit
- Message Queue
 - Limits for number of items in queue, or time to process one message
- ML or Processing pipelines
 - check that inference/processing on some fixed set always gives the right result

ML Monitoring

- <https://stanford-cs329s.github.io/syllabus.html>

