

Seminar 2: Monitoring DS - <https://sre.google/sre-book/monitoring-distributed-systems>

Learn from Google how they monitor their services.

Keywords: monitoring, white-box, saturation, resolution, *whatever word you didn't understand* etc.

- **What is the paper about?**

This paper examines what system monitoring is, as well as its benefits and drawbacks.

- **What is monitoring?**

Monitoring is collecting and aggregating quantitative data about the system, such as query time, service load, etc.

- **Why monitor a system in the first place?**

Monitoring is pivotal since it permits us to find flaws in system communication, identify bottleneck services, and understand how to increase capacity appropriately using empirical data.

- **Explain the 4 golden signals of monitoring.**

- **Latency** – A bug might result in increased time of response.
- **Traffic** – Detecting either amount of requests or the amount of data transferred in streaming connections.
- **Errors** – Unusual rate of errors might indicate a poor quality of service.
- **Saturation** – Calculating the load on the service might be indicative about scaling opportunities. Especially this would be useful for notifying about database running out of space.

- **According to the paper, how do you do monitoring? What is important? Exemplify.**

Selecting and inspecting data is critical. The average out of the time per request in a 5-second window is a typical issue. This allows a big processing time to be hidden among several smaller ones. A better method would be to divide the into time intervals and count how many were between [0.1 and 0.3], [0.3 and 0.7], and so on.

- **What approach would you use for your lab: White-box or Black-box monitoring? Why?**

Combination of two of them is the best answer. It's useful to have a summary of the system's availability for the client (black-box) as well as a visual representation of what's going on within (white-box).

- **What happened with Bigtable SRE and how did they "fix" the situation?**

When the SLO was approaching, email notifications were sent out, and when the SLO was reached, paging alerts were sent out. Both sorts of alerts were generating excessive amounts of engineering work: the team had to spend a substantial amount of time triaging the warnings to discover the few that were truly actionable, and we frequently missed the problems that genuinely harmed customers because there were so few of them.

To fix the problem, the team used a three-pronged approach: we worked hard to increase Bigtable's performance while simultaneously temporarily lowering our SLO objective to the 75th percentile request latency. They also turned off email notifications since there were so many that it was impossible to keep track of them all.