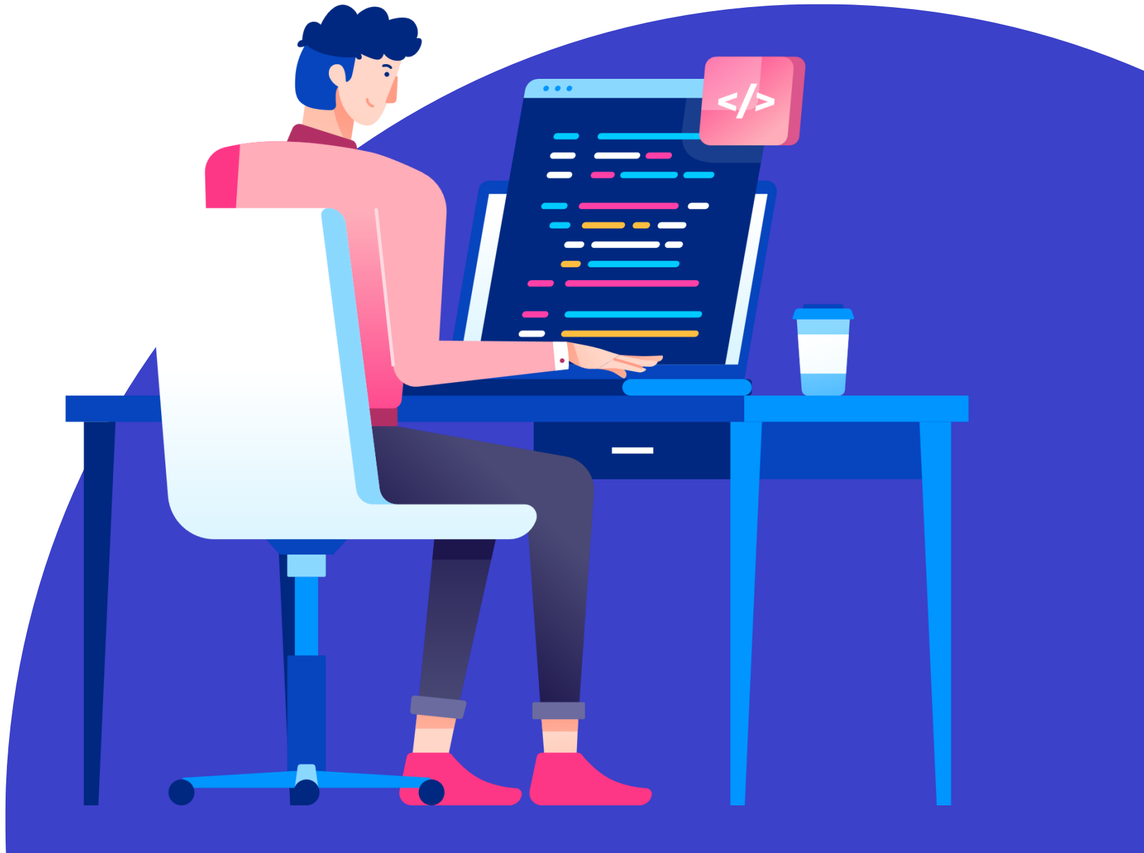
Spring Clean
2025

THE FUTURE OF AKS MONITORING: TRENDS AND TOOLS YOU CAN'T IGNORE



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KLOUD with Kasun

SPEAKERS

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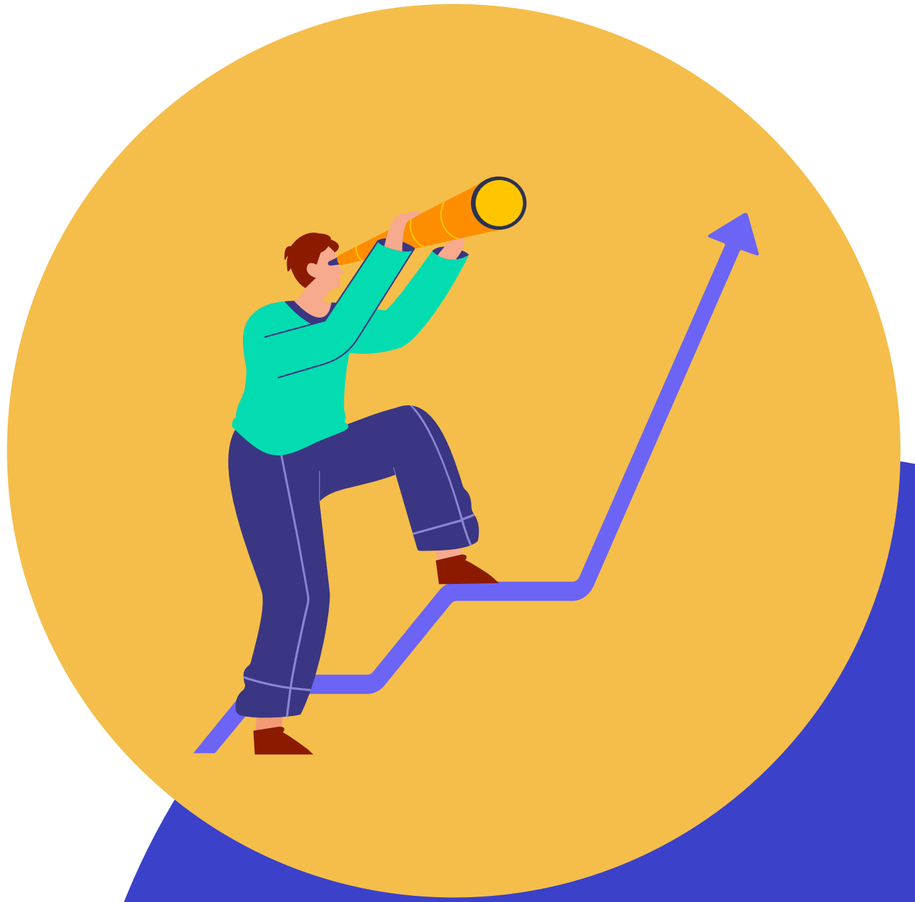
AGENDA

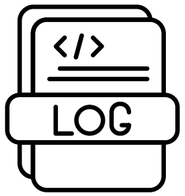
- What is Observability?
- Key Concepts of Cloud Native Observability
- Azure Services for Observability
- Monitoring Microservices on Azure Kubernetes Service (AKS)
- Best Practices and Use Cases
- Demos

WHAT IS OBSERVABILITY?

- Understand the internal state of a system by examining its outputs (logs, metrics, traces).
- Provides deeper insights into application behavior and health.

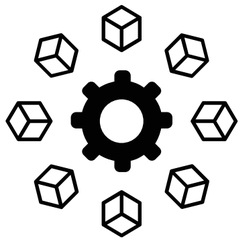


- **Metrics:** Numerical data representing system performance (e.g., CPU usage, memory consumption).
- **Logs:** Text-based records that provide context for events.
- **Traces:** Distributed request tracking across multiple services.



KEY CONCEPTS OF CLOUD NATIVE OBSERVABILITY

- **Microservices Architecture:**
  - Monitoring and debugging distributed systems can be complex.
  - Requires scalable solutions to track the health and performance of each component.
- **Scalability & Elasticity:**
  - The observability solution should adapt as services scale up or down.
- **Real-time Monitoring:**
  - Immediate feedback on performance and issues for proactive troubleshooting.

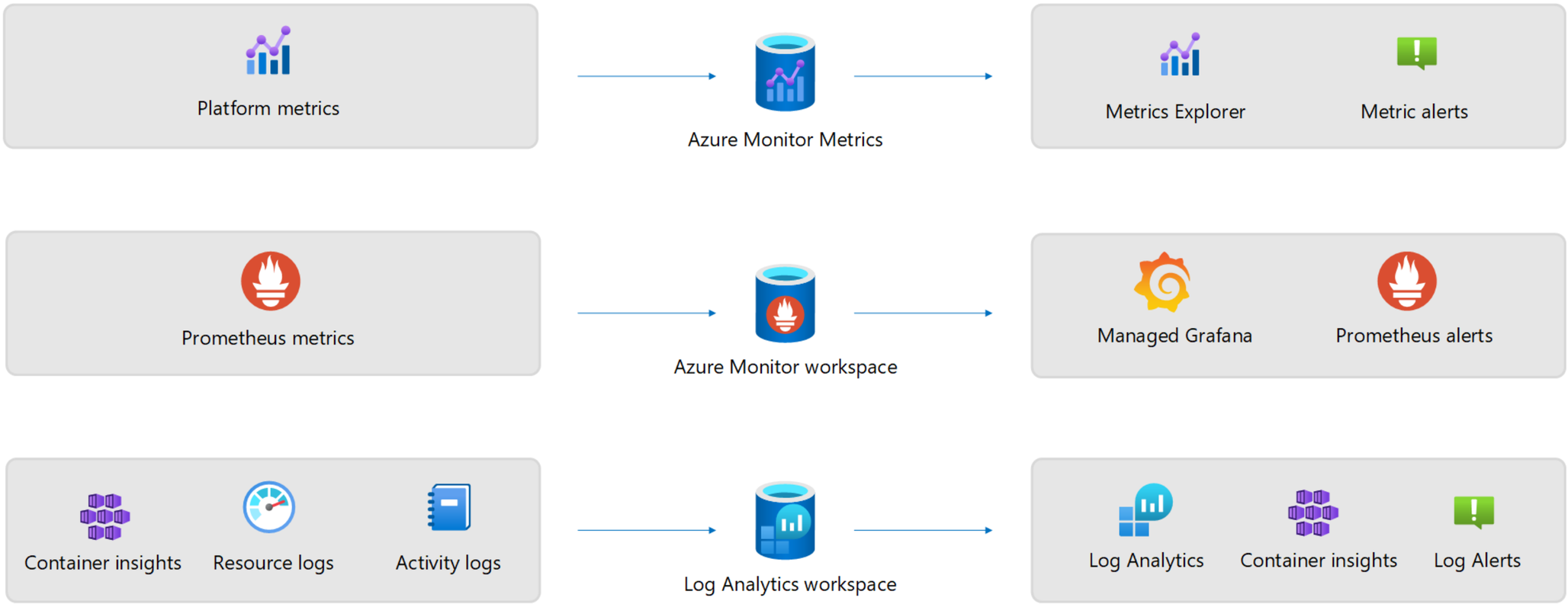


AZURE SERVICES FOR OBSERVABILITY

- Azure Monitor
- Azure Application Insights
- Azure Log Analytics
- Azure Managed Prometheus & Grafana

- Azure Log Analytics
- Azure Monitor

MONITORING IN AZURE



MONITORING MICROSERVICES ON AKS

- **Challenges:**
  - Observing microservices involves tracking many moving parts.
  - Need for unified observability across all services.

- **Solutions:**
  - **Prometheus Manged Service:** Collect metrics from AKS and export them to Azure Log Analytics or Azure Monitor.
  - **Application Insights SDK:** Embed directly into your services for deeper insights.
  - **Azure Monitor for Containers:** Specialized monitoring for AKS clusters, showing health, performance, and logs.

- Enable Azure Manged Prometheus and Grafana for AKS
- Use AKS container insights
- View Logs in Log Analytics Workspace

BEST PRACTICES FOR CLOUD NATIVE OBSERVABILITY

- **Use Distributed Tracing:** Understand how requests flow through your microservices.
- **Automate Alerts and Responses:** Set thresholds for key metrics and automate incident responses.
- **Centralize Log Management:** Utilize Azure Log Analytics to aggregate and query logs from different services.
- **Leverage Visual Dashboards:** Use Azure Managed Grafana or Azure Monitor Workbooks for effective visualization.

Conclusion

- **Key Takeaways:**
  - Cloud native observability is essential for managing modern, distributed applications.
  - Azure provides a comprehensive set of tools to achieve observability, from infrastructure to applications.
  - Implementing best practices can enhance reliability, scalability, and performance of cloud native solutions.

References

Demo repo on Cloud-Infrastructure-Journey
https://github.com/Cloud-Infrastructure-Journey/Azure-Spring-Clean-2025

Monitor Azure Kubernetes Service (AKS)
https://learn.microsoft.com/en-us/azure/aks/monitor-aks?tabs=cilium

THANK YOU