



5th Planetary Data Workshop &
2nd Planetary Science Informatics and Data
Analytics Meeting

Cloud Processing of PDS Archival Products with Amazon Web Services, Kubernetes, and Elasticsearch

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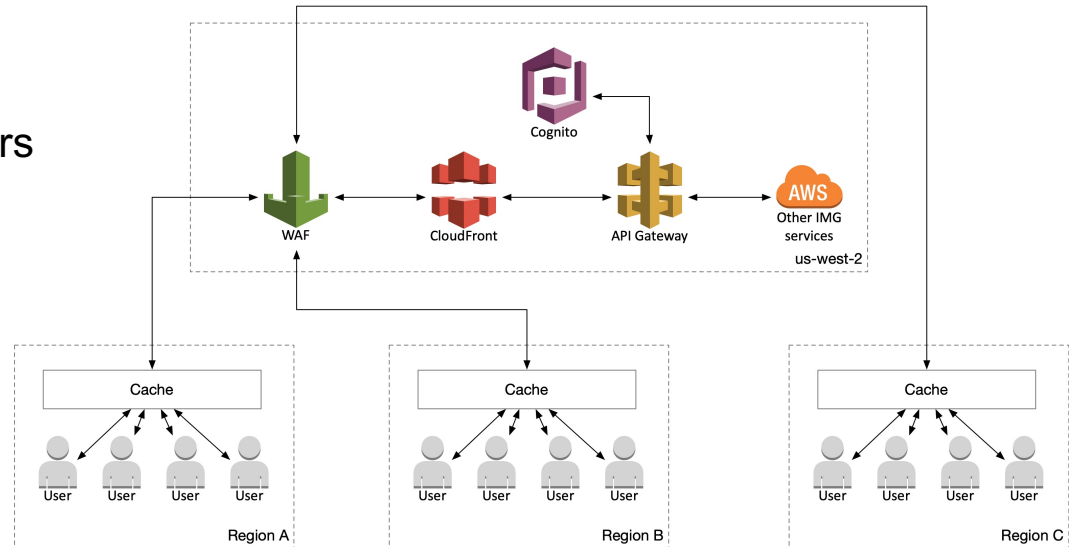
Cloud Processing of PDS Archival Products

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- Nearly 2 PB of data at PDS Imaging Node (and growing!)
- **Challenge:** Making large amounts of data searchable and accessible as quickly as possible
- Option A – on-prem
 - Buy more hardware
 - Hire more system administrators
- Option B – the cloud
 - AWS Cloud
 - Managed services
 - Microservices architecture
 - Containerization

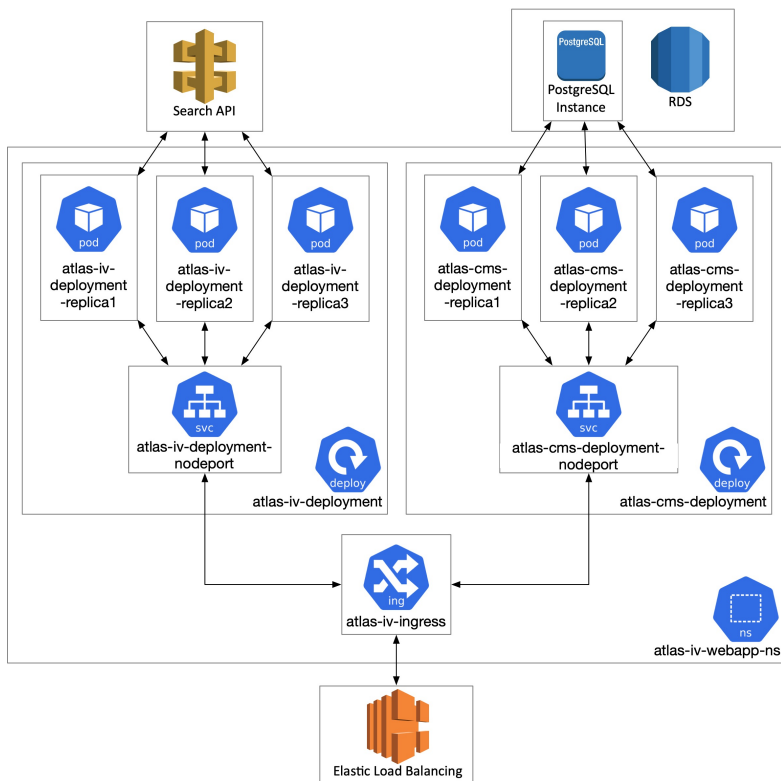


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Solution: Microservices on Kubernetes

- Build application components into Docker images
- Each “microservice” is built of multiple Docker containers
- Microservices communicate with each other via Kubernetes service interfaces
- High availability, zero-downtime upgrades
- Running on AWS’s managed Kubernetes-as-a-service, Elastic Kubernetes Service
- Replica of system on-premises for development

References

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<https://bit.ly/3gldrmW>

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“PDS Imaging Node”. <https://pds-imaging.jpl.nasa.gov>. NASA/JPL-Caltech

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