



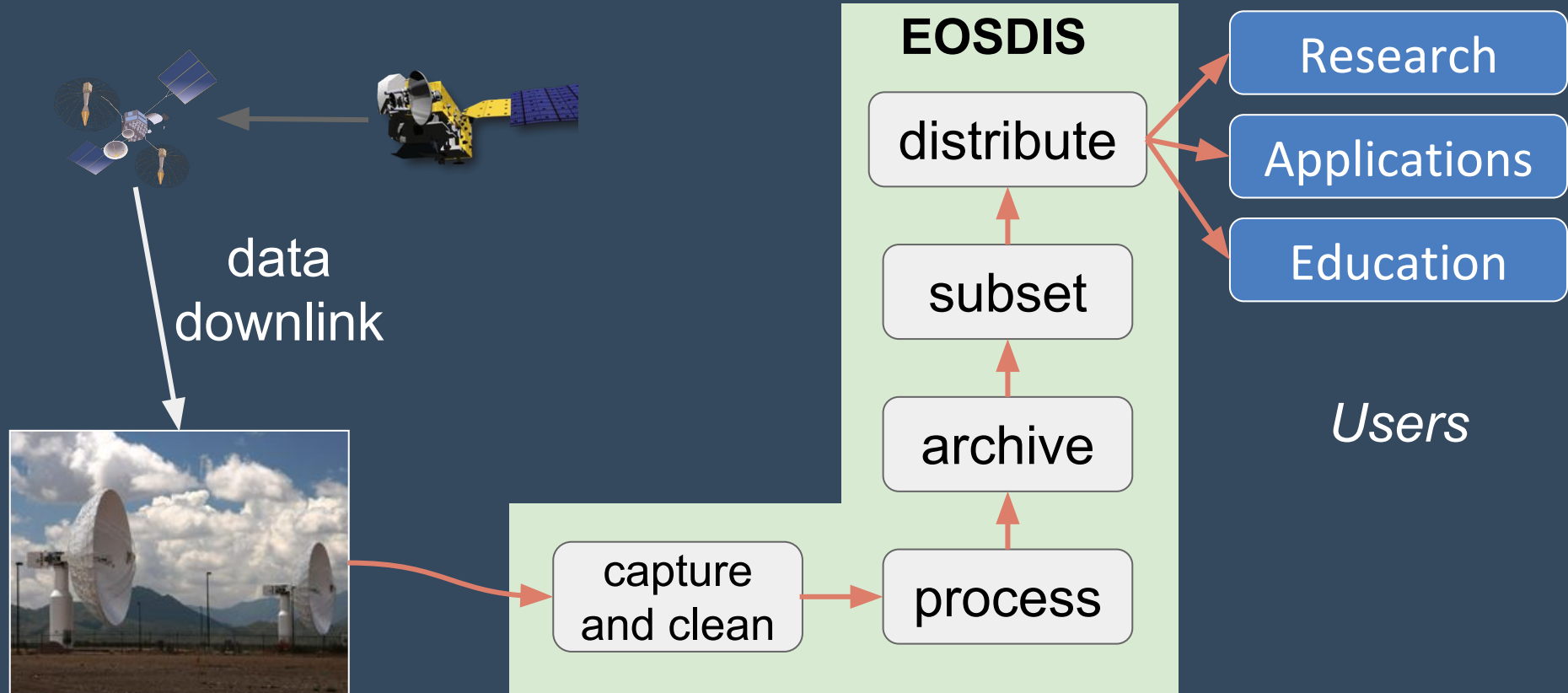
Earthdata Cloud Analytics Project

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NASA

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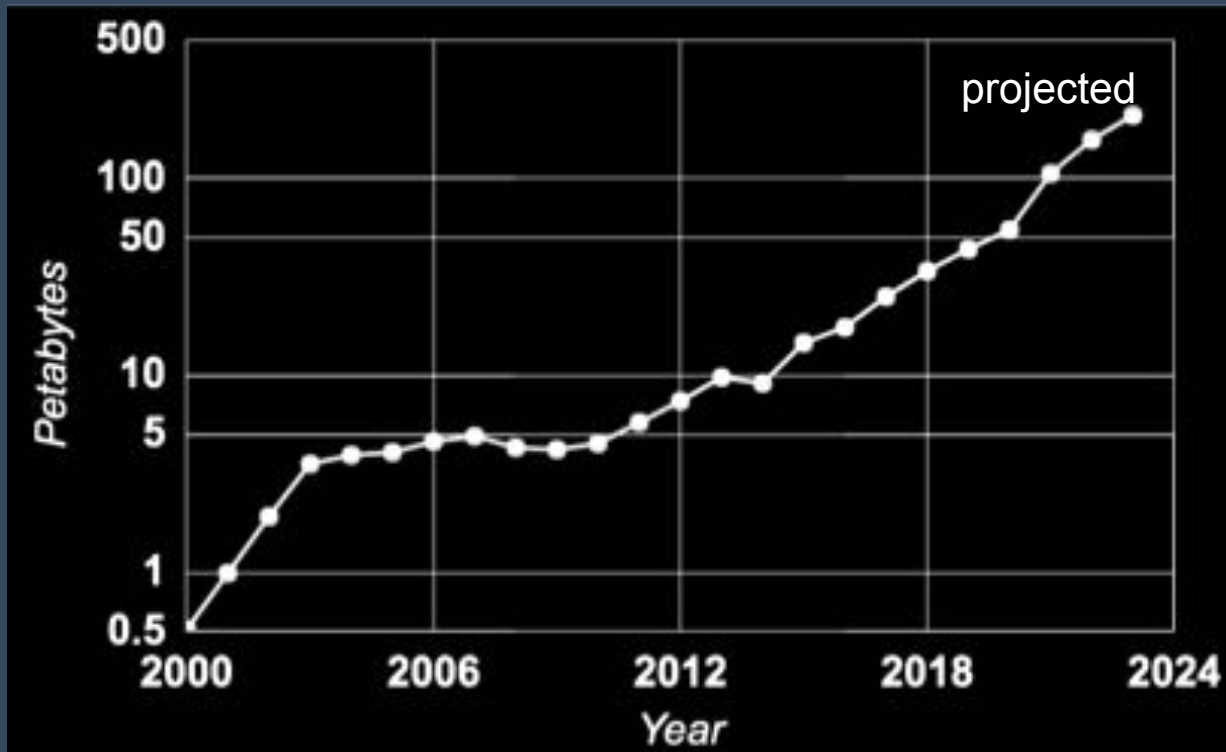


Earth Observing System Data and Information System (EOSDIS)



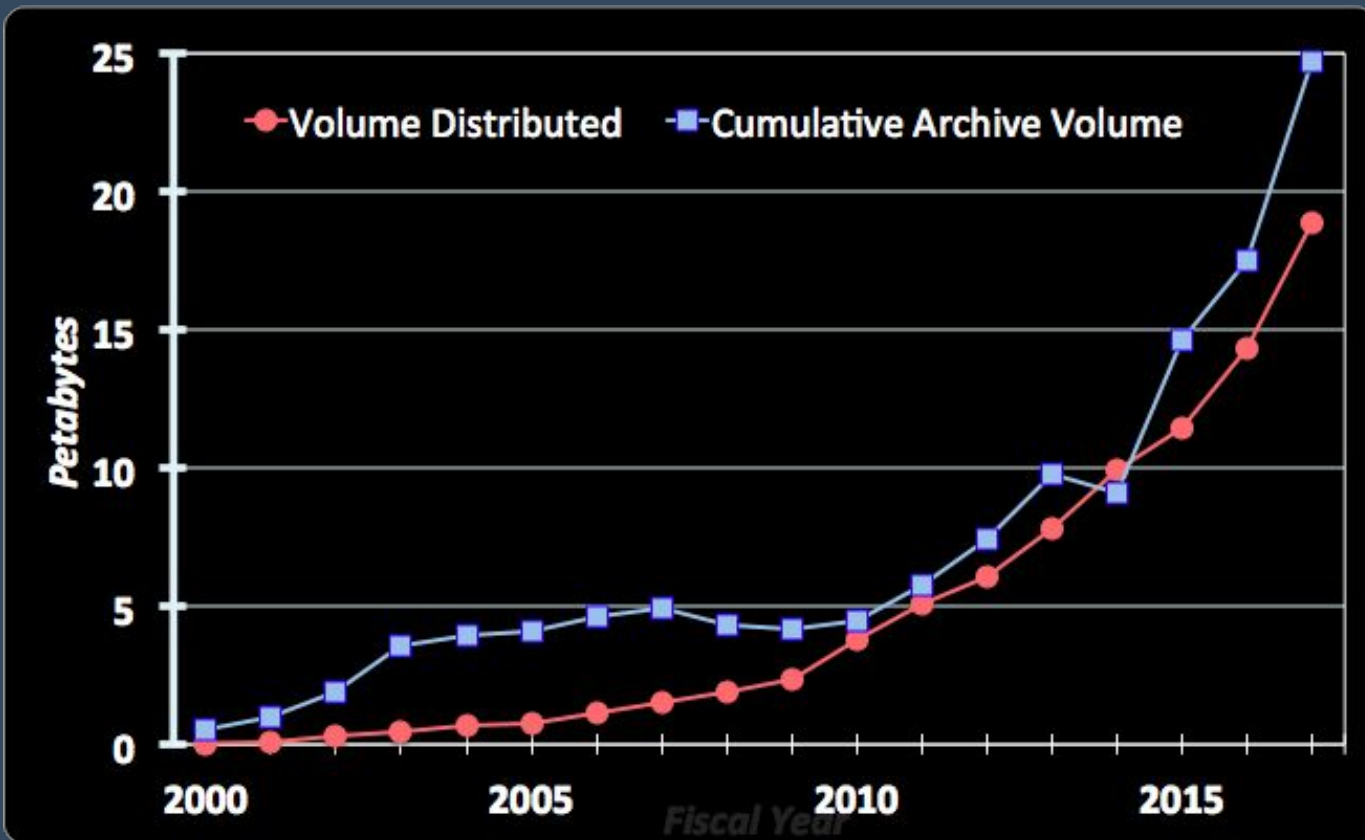


Over time, EOSDIS archive volumes increase exponentially





Distribution increases similarly to cumulative volume

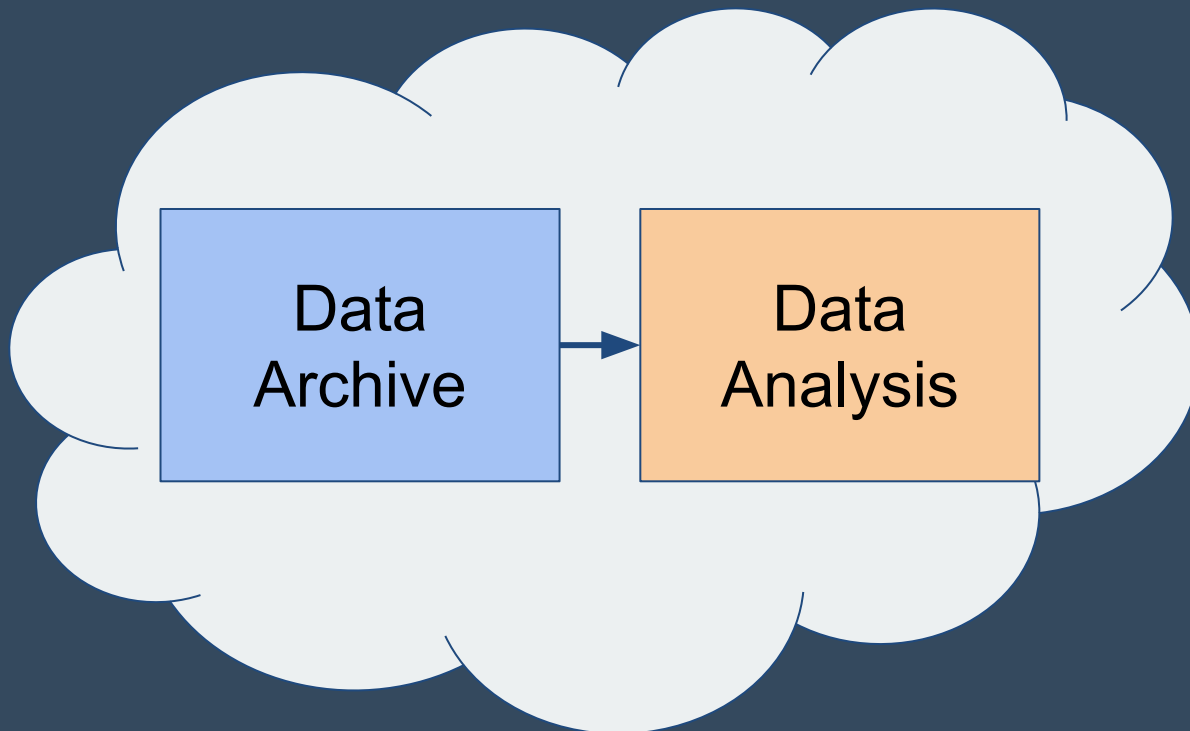




*How do we support user analysis
of very large data volumes?*



Solution: Data-proximal Analysis





Goals

1. Enable big compute next to big data
2. Encourage user adoption of cloud for analytics
3. Maximum analytics capability at minimum cost
 - a. Use capabilities within NASA more effectively and efficiently
 - b. Leverage analytics capabilities of external partners



Key Features

1. Satisfy a diverse user community
2. Support analysis in the cloud without egressing data
3. Facilitate multi-dataset comparison and fusion
4. Support batch, interactive and streaming modes
5. Support distributed filesystems and databases
6. Support cost constraints and cost-sharing



Earthdata Cloud Analytics Guiding Principles

1. Infusion- and innovation-friendly framework and building blocks
2. No monolithic systems
3. Open code and services
4. Interoperability and reuse
5. No unnecessary duplication (“undifferentiated heavy lifting”)



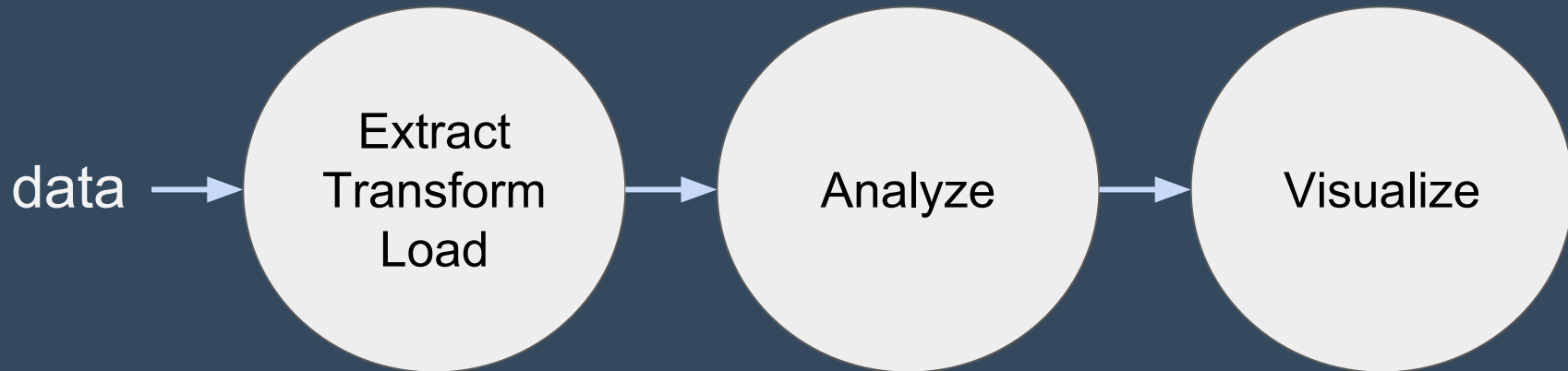
Architectural Concept

Earth Science Data Analytics the Cloud-Native Way: **Everything is a Service**

*This approach produces key important benefits for
the user community and EOSDIS*

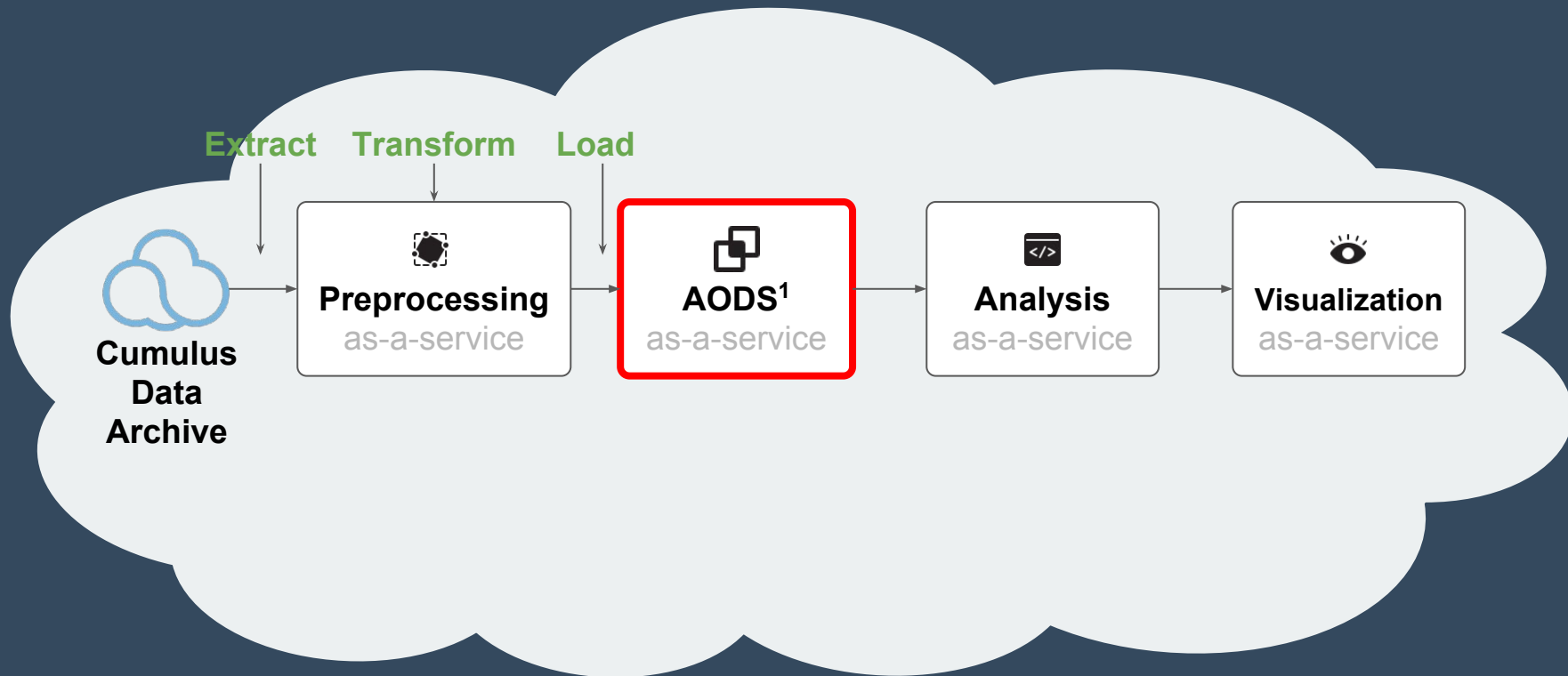


Abstract Analytics Workflow





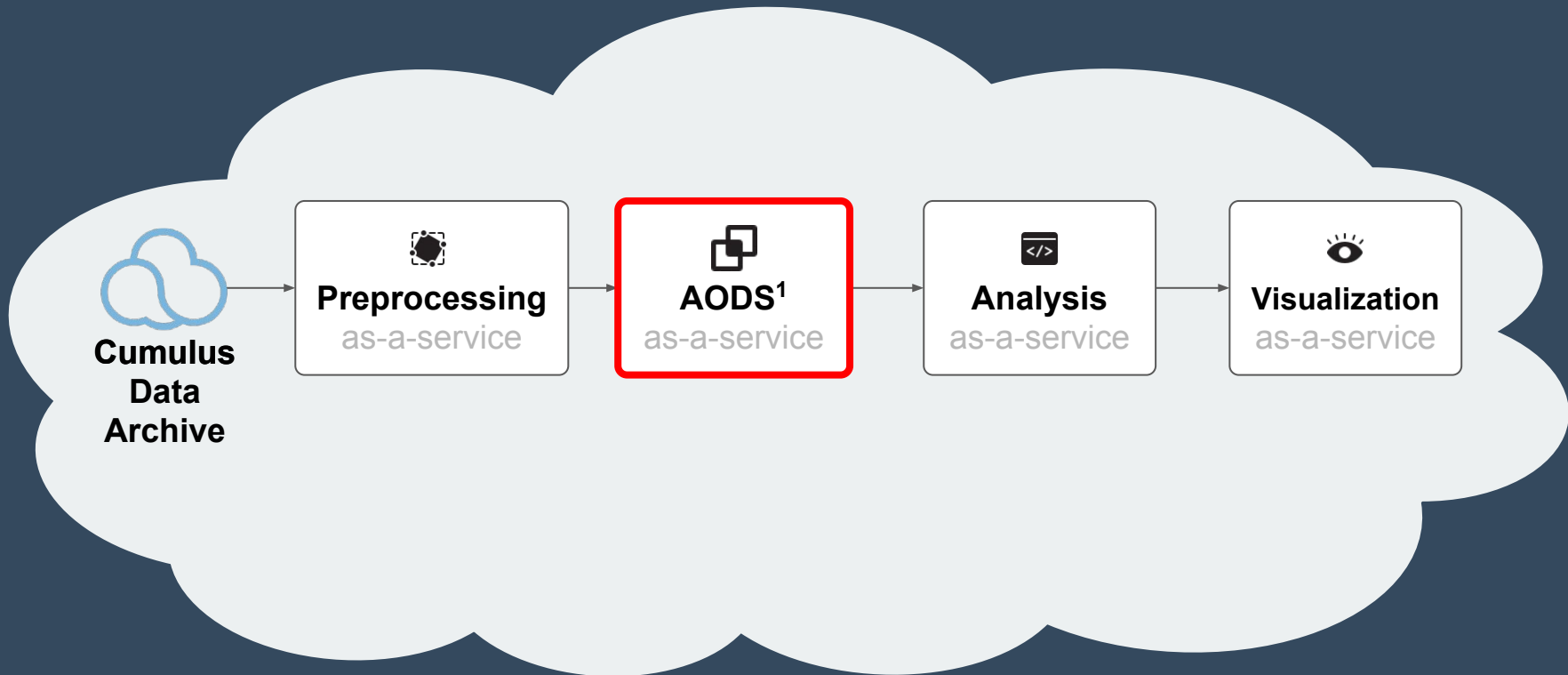
Earthdata Cloud Analytics Reference Architecture



¹ Analytics Optimized Data Store



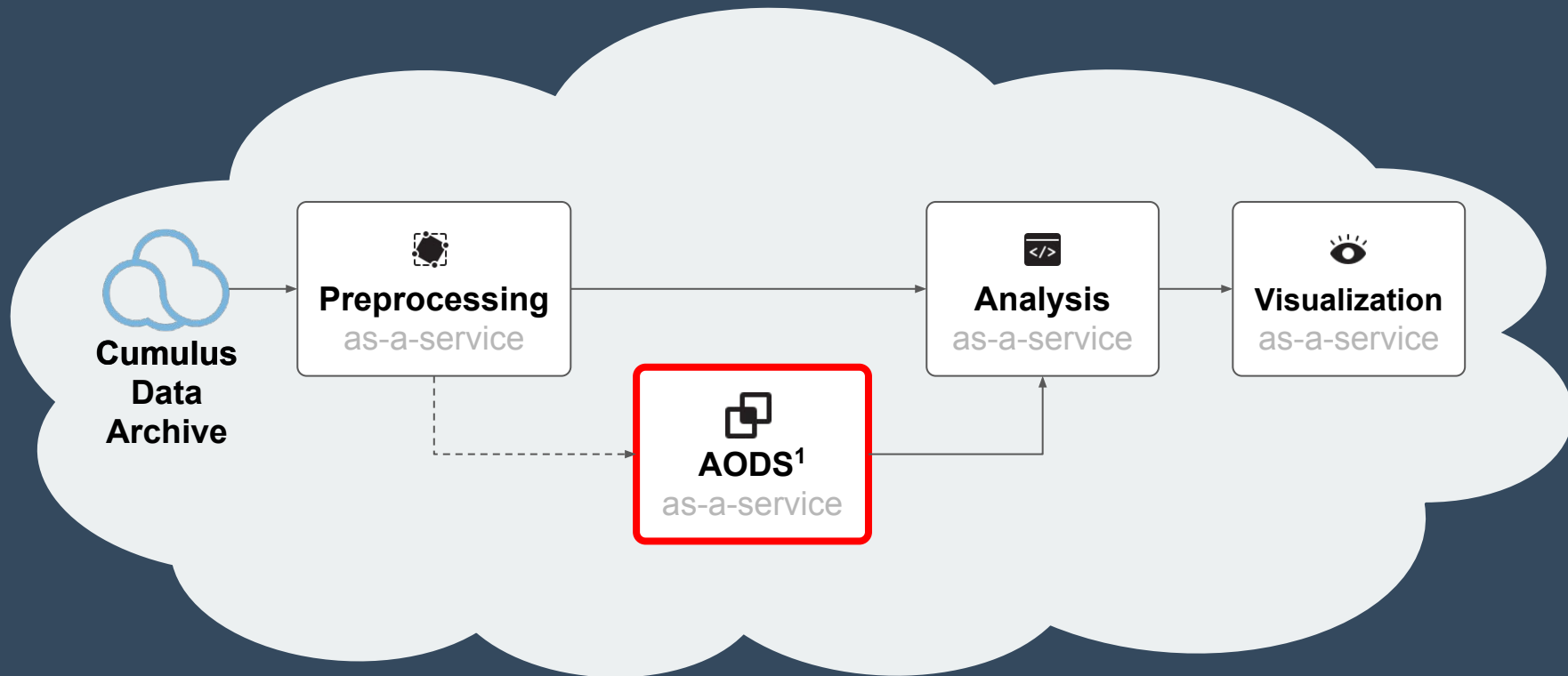
Interactive Mode: Analytics-Optimized Storage



¹ Analytics Optimized Data Store



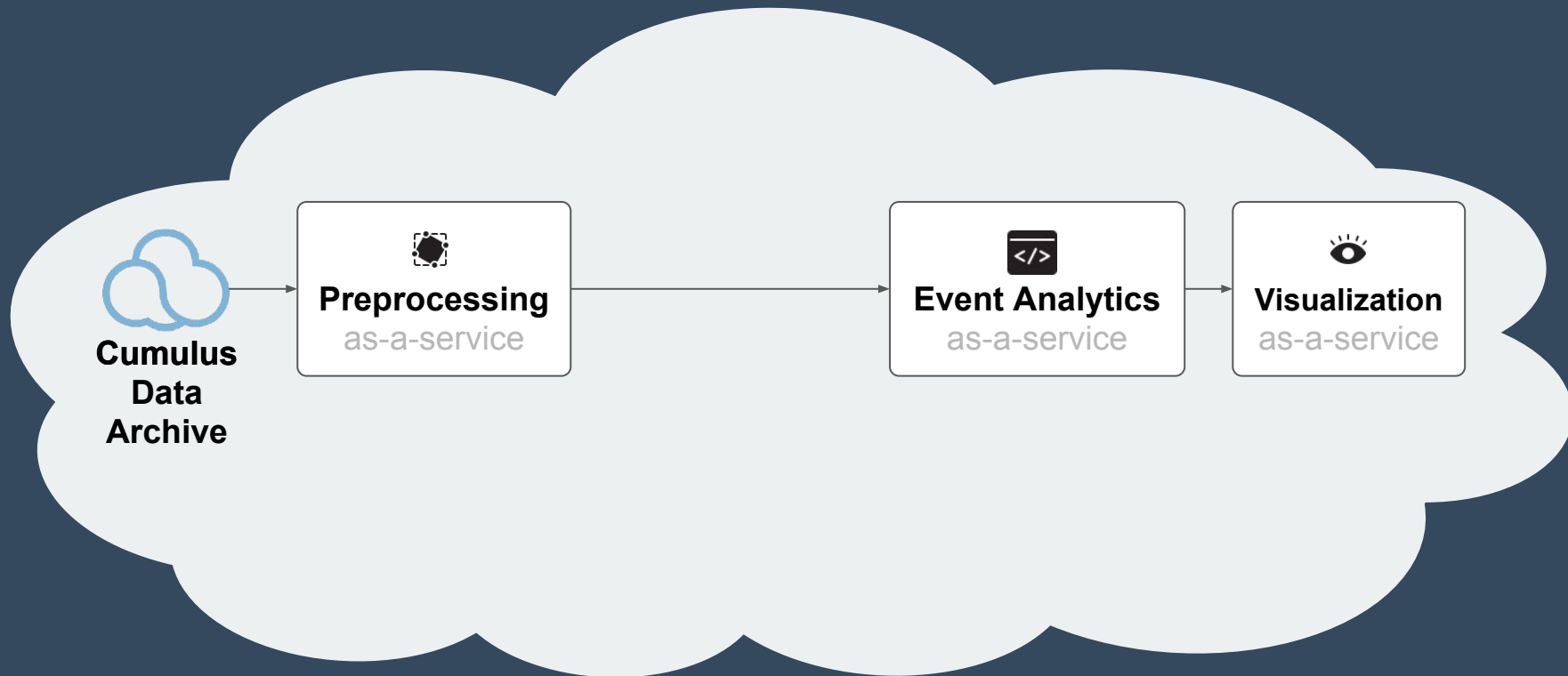
Batch Mode



¹ Analytics Optimized Data Store

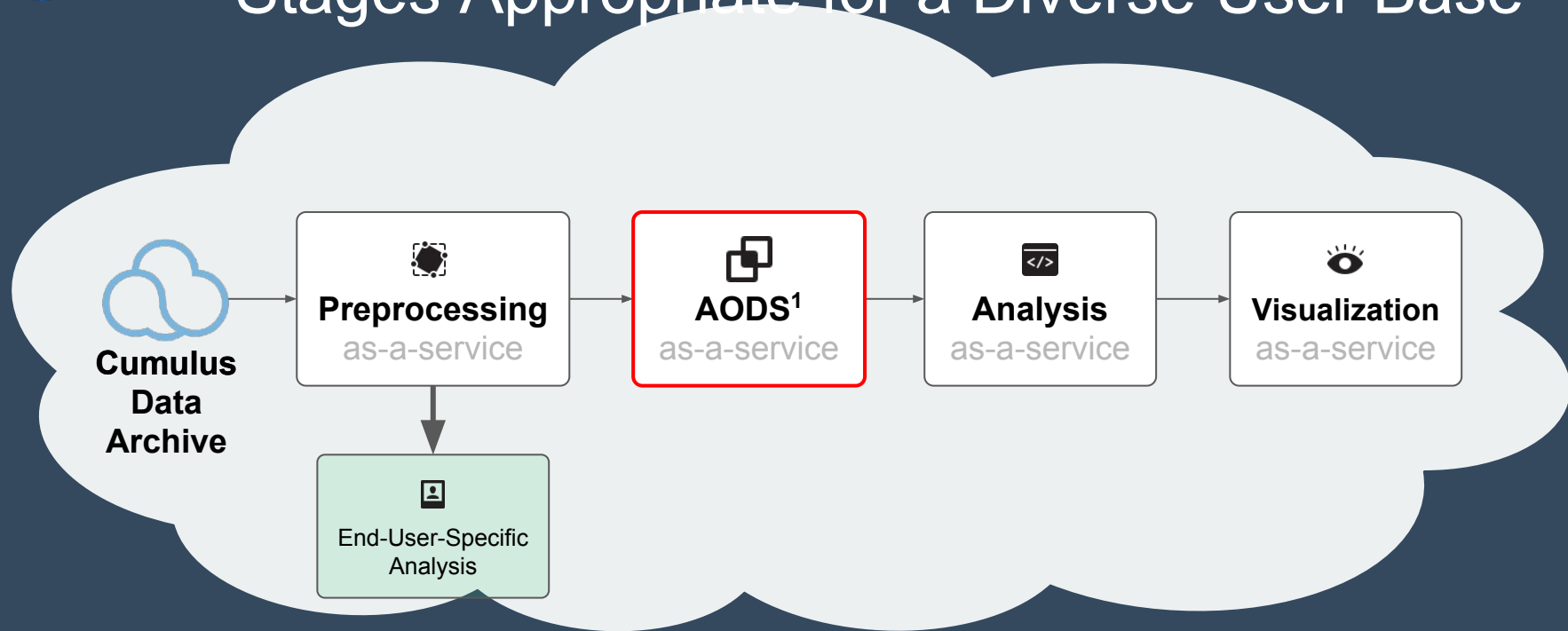


Streaming Mode





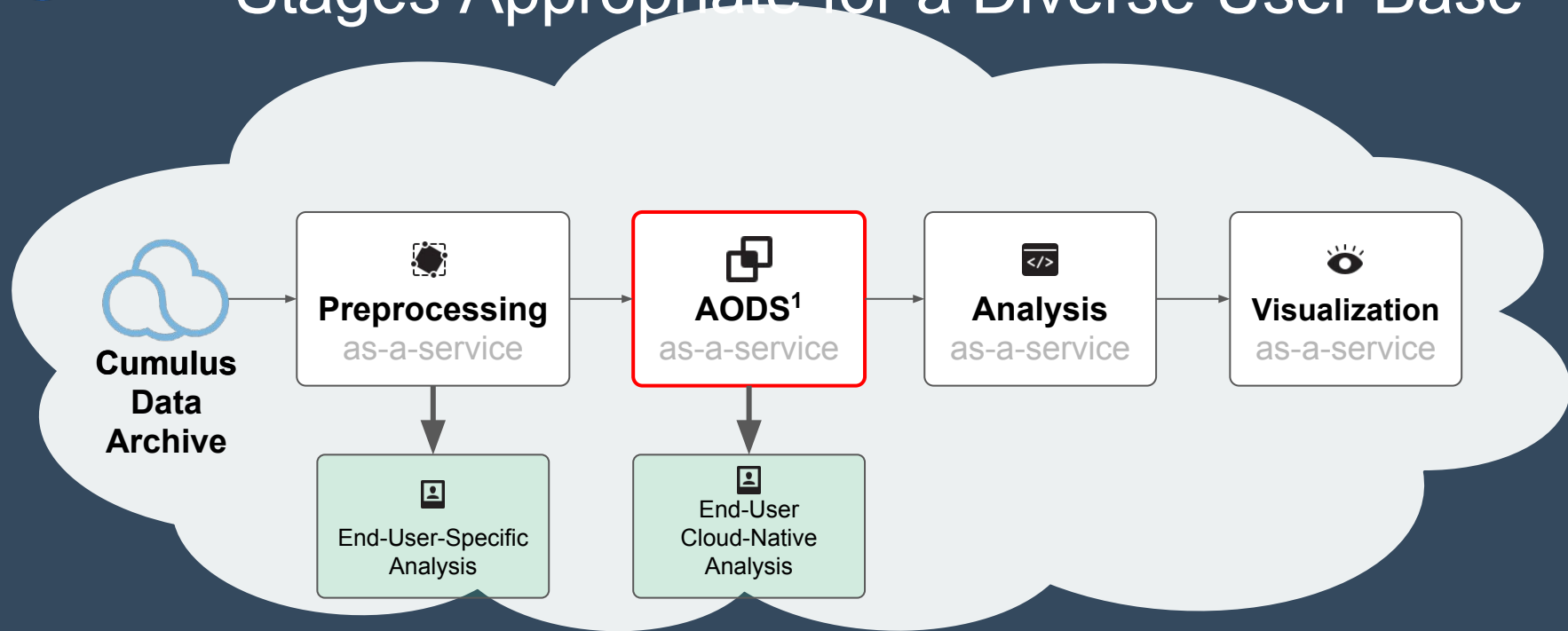
Open Pipeline Provides Outputs at Different Stages Appropriate for a Diverse User Base



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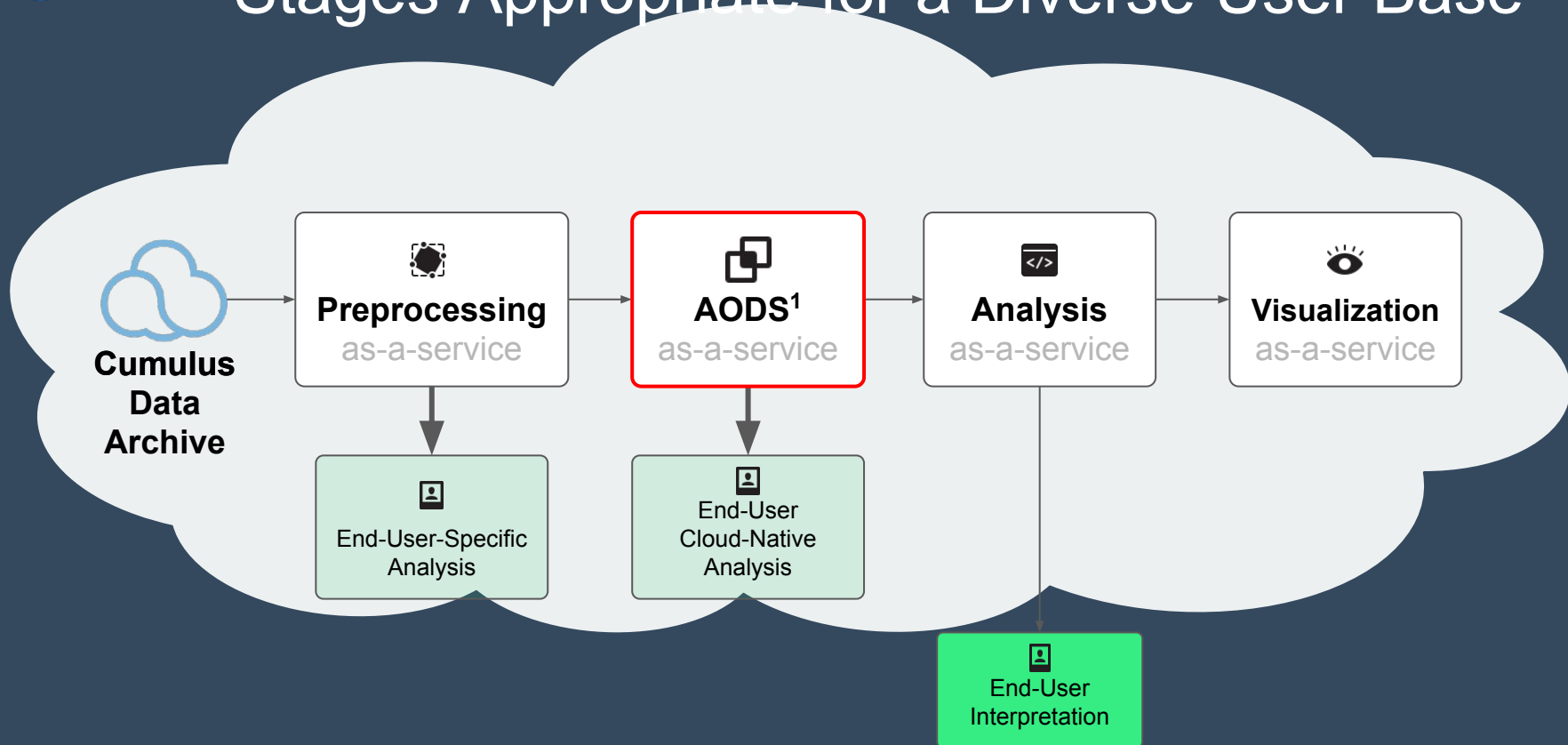
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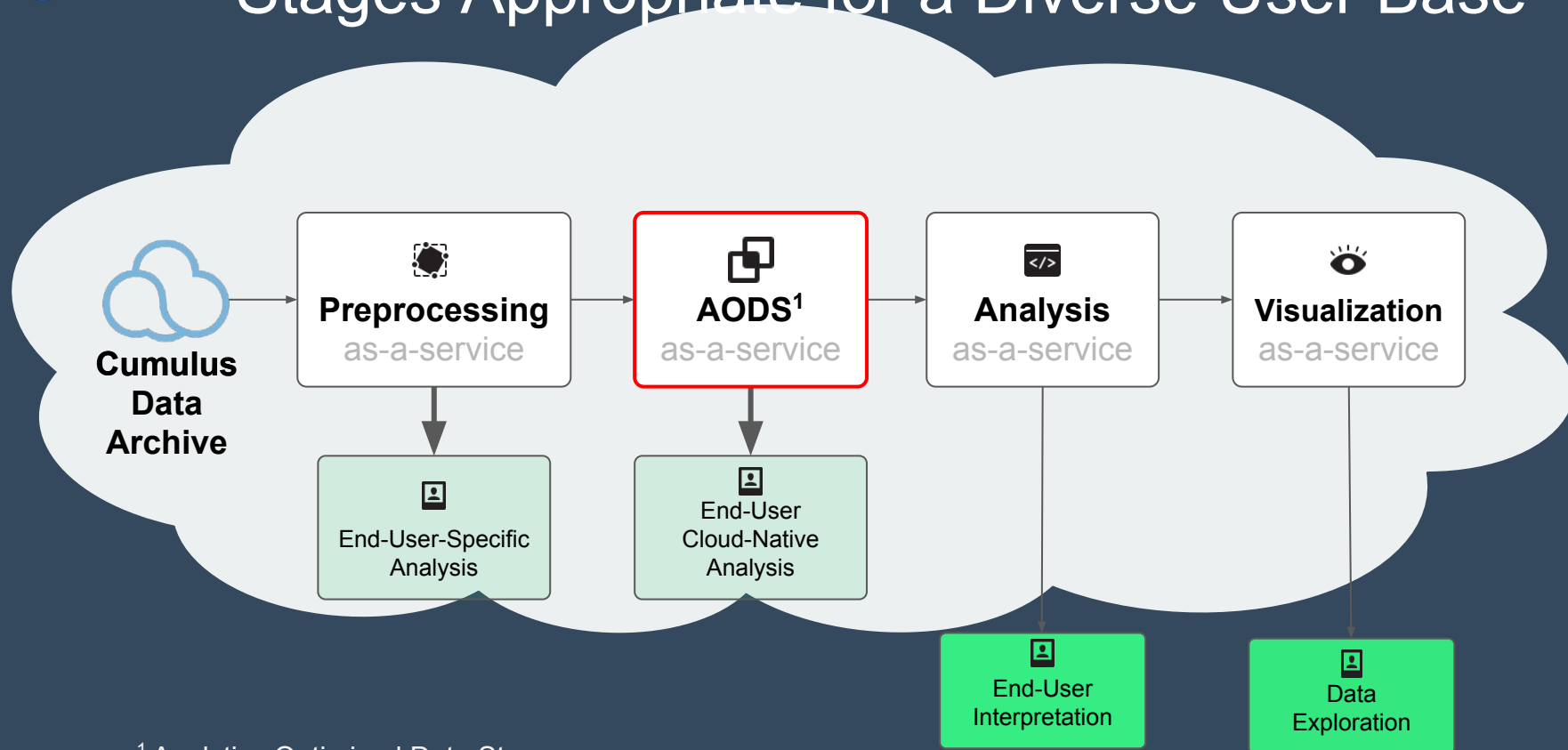
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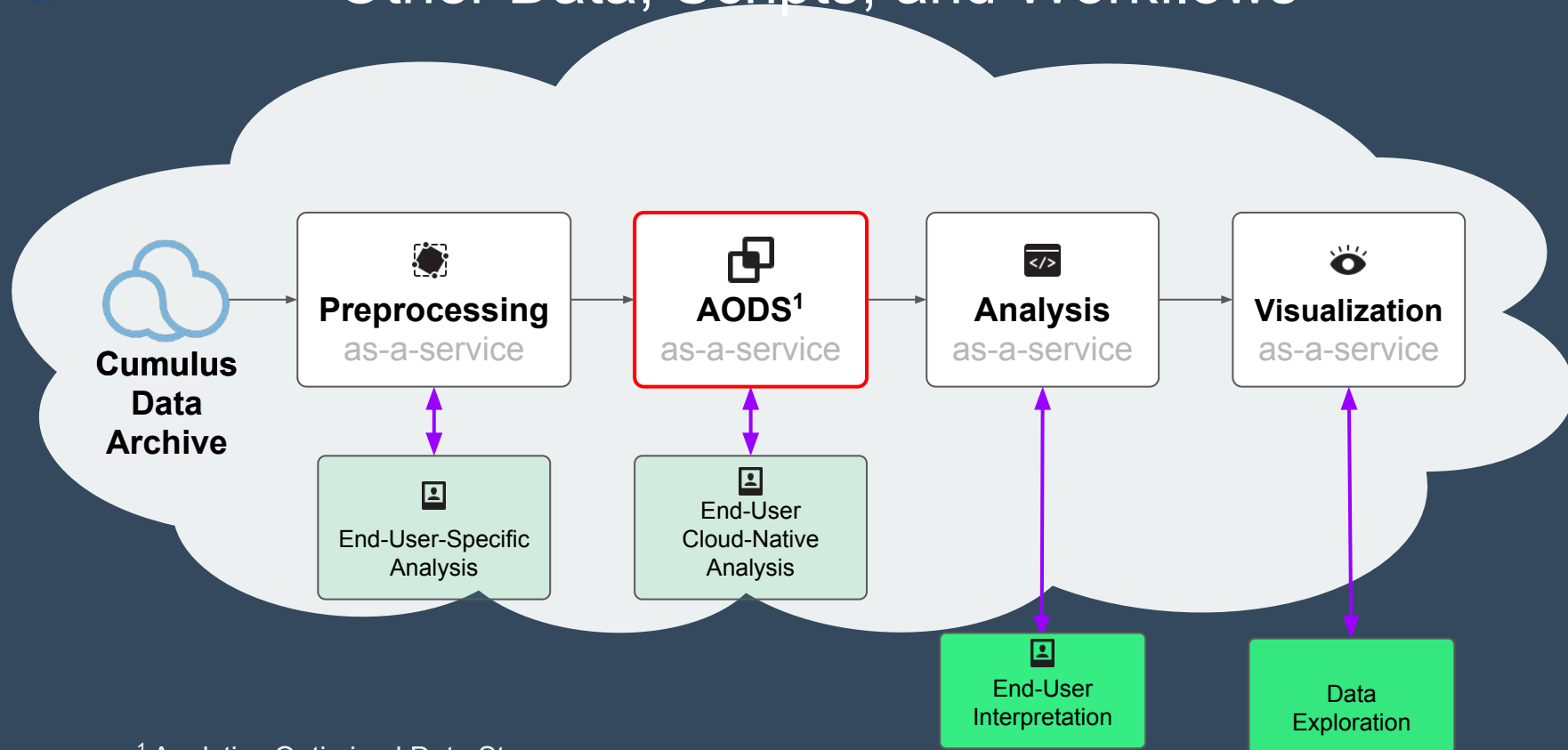
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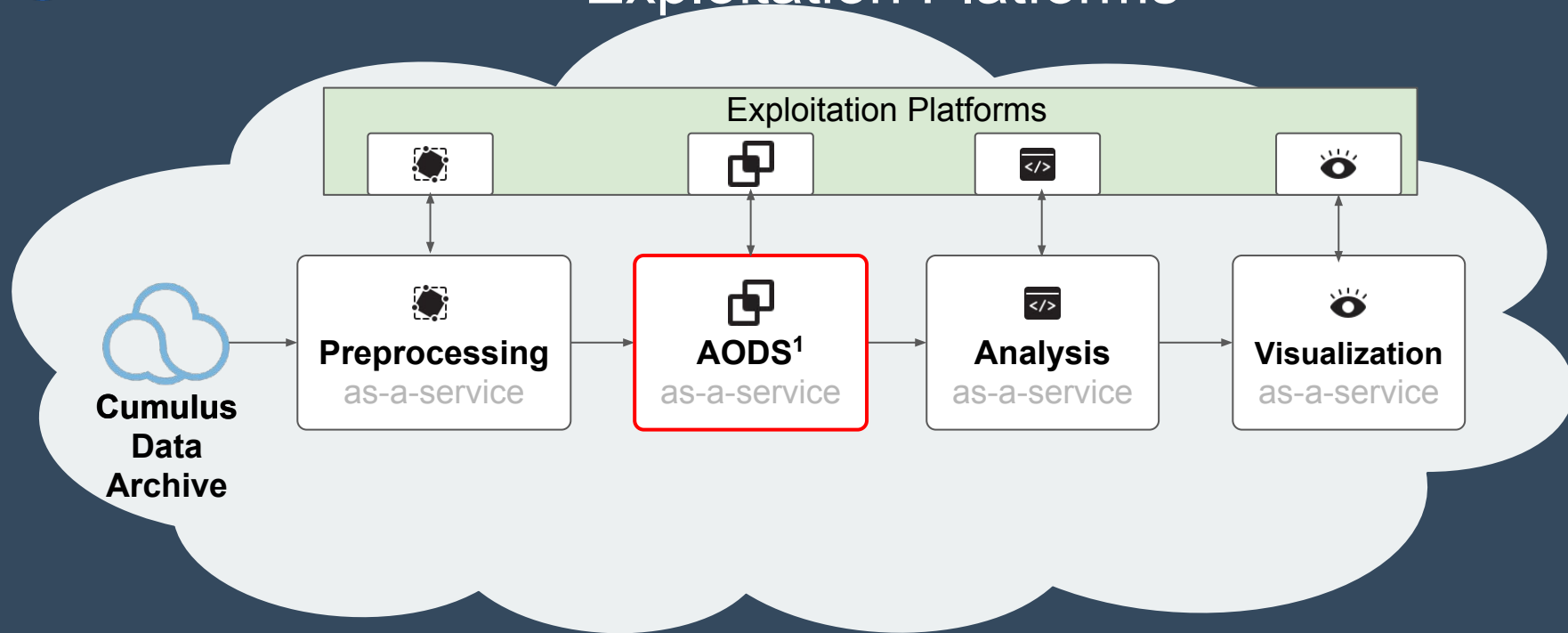
Open Pipeline Enables Integration with Other Data, Scripts, and Workflows



¹ Analytics Optimized Data Store



Open Pipeline Enables Integration with Exploitation Platforms



¹ Analytics Optimized Data Store