AWS re:Invent

ANT229

Introducing UltraWarm for Amazon Elasticsearch Service

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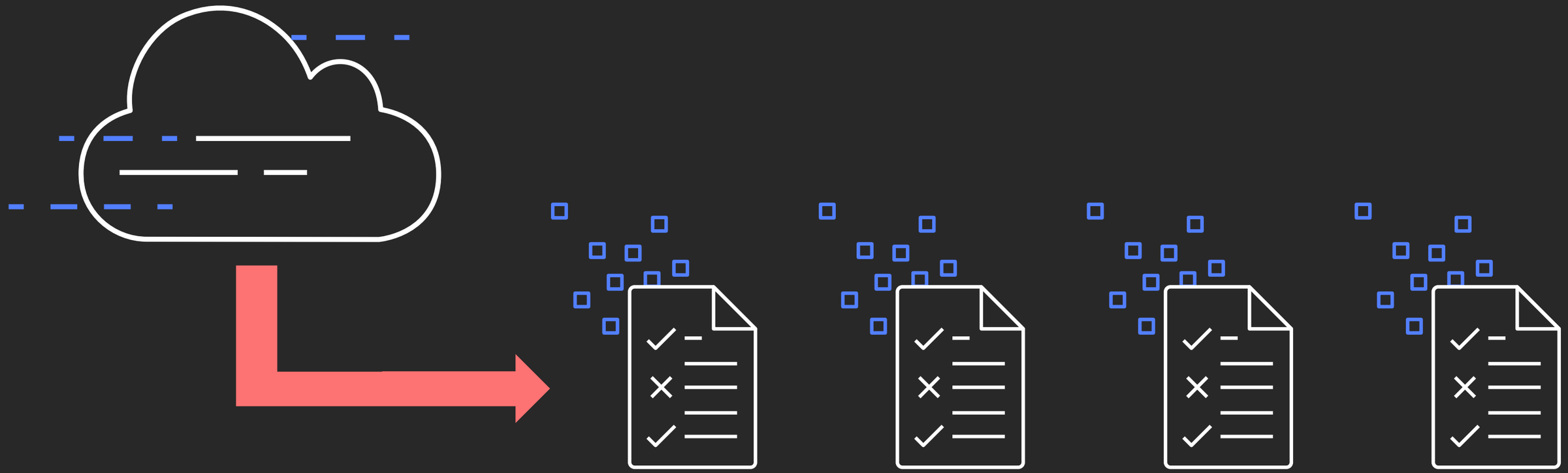
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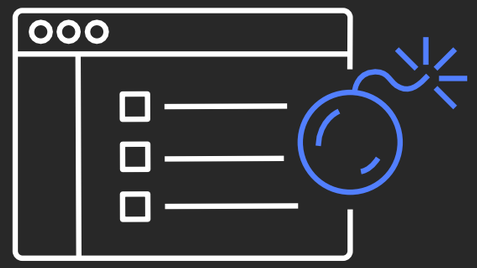


You've got logs

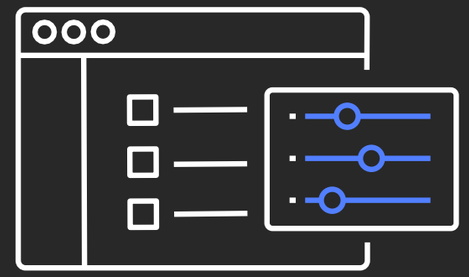
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2.81.55 - - [01/Jul/1995:00:00:01 -0400] "GET /history/apollo/ HTTP/1.0" 200 6245
mp6.unicomp.net - - [01/Jul/1995:00:00:06 -0400] "GET /shuttle/countdown/ HTTP/1.0" 200 3985
20.110.21 - - [01/Jul/1995:00:00:09 -0400] "GET /shuttle/missions/sts-73/mission-sts-73.html HTTP/1.0" 200 4085
r.letters.com - - [01/Jul/1995:00:00:11 -0400] "GET /shuttle/countdown/liftoff.html HTTP/1.0" 304 0
20.110.21 - - [01/Jul/1995:00:00:11 -0400] "GET /shuttle/missions/sts-73/sts-73-patch-small.gif HTTP/1.0" 200 4179
r.letters.com - - [01/Jul/1995:00:00:12 -0400] "GET /images/NASA-logosmall.gif HTTP/1.0" 304 0
r.letters.com - - [01/Jul/1995:00:00:12 -0400] "GET /shuttle/countdown/video/livevideo.gif HTTP/1.0" 200 0
12.115.106 - - [01/Jul/1995:00:00:12 -0400] "GET /shuttle/countdown/countdown.html HTTP/1.0" 200 3985
aa.net - - [01/Jul/1995:00:00:13 -0400] "GET /shuttle/countdown/ HTTP/1.0" 200 3985
4.144.152 - - [01/Jul/1995:00:00:13 -0400] "GET / HTTP/1.0" 200 7074
mp6.unicomp.net - - [01/Jul/1995:00:00:14 -0400] "GET /shuttle/countdown/count.gif HTTP/1.0" 200 40310
mp6.unicomp.net - - [01/Jul/1995:00:00:14 -0400] "GET /images/NASA-logosmall.gif HTTP/1.0" 200 786
mp6.unicomp.net - - [01/Jul/1995:00:00:14 -0400] "GET /images/KSC-logosmall.gif HTTP/1.0" 200 1204
aa.net - - [01/Jul/1995:00:00:15 -0400] "GET /shuttle/countdown/count.gif HTTP/1.0" 200 40310
aa.net - - [01/Jul/1995:00:00:15 -0400] "GET /images/NASA-logosmall.gif HTTP/1.0" 200 786
aa.net - - [01/Jul/1995:00:00:15 -0400] "GET /images/KSC-logosmall.gif HTTP/1.0" 200 1204
4.144.152 - - [01/Jul/1995:00:00:17 -0400] "GET /images/ksclogo-medium.gif HTTP/1.0" 304 0
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y391.asahi-net.or.jp - - [01/Jul/1995:00:00:18 -0400] "GET /facts/about_ksc.html HTTP/1.0" 200 3977
-141.eden.com - - [01/Jul/1995:00:00:19 -0400] "GET /shuttle/missions/sts-71/images/KSC-95EC-0916.jpg HTTP/1.0" 200 34
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s-gw.starway.net.au - - [01/Jul/1995:00:00:25 -0400] "GET /shuttle/missions/51-l/mission-51-l.html HTTP/1.0" 200 6723
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l2-01.ix.netcom.com - - [01/Jul/1995:00:00:41 -0400] "GET /shuttle/countdown/ HTTP/1.0" 200 3985
```



Application usage, click stream data, KPIs



Faults and errors, Security



Up time, resource use, performance

Your logs have information

What is Elasticsearch?

Elasticsearch, Logstash, and Kibana

Distributed search and analytics engine

Easy ingestion and visualization

Rank			DBMS	Score		
Nov 2019	Oct 2019	Nov 2018		Nov 2019	Oct 2019	Nov 2018
1.	1.	1.	Oracle	1336.07	-19.81	+34.96
2.	2.	2.	MySQL	1266.28	-16.78	+106.39
3.	3.	3.	Microsoft SQL Server	1081.91	-12.81	+30.36
4.	4.	4.	PostgreSQL	491.07	+7.16	+50.83
5.	5.	5.	MongoDB	413.18	+1.09	+43.70
6.	6.	6.	IBM Db2	172.60	+1.83	-7.27
7.	7.	↑ 8.	Elasticsearch	148.40	-1.77	+4.94
8.	8.	↓ 7.	Redis	145.24	+2.32	+1.06
9.	9.	9.	Microsoft Access	130.07	-1.10	-8.36
10.	10.	↑ 11.	Cassandra	123.23	+0.01	+1.48

Source: DB-Engines.com, October 2019

Amazon Elasticsearch Service



Amazon Elasticsearch Service is a fully managed service that makes it easy to deploy, manage, and scale Elasticsearch and Kibana

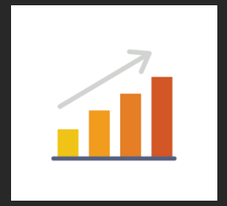
Benefits of Amazon Elasticsearch Service



Supports Open-Source APIs and Tools



Easy to Use



Scalable



Secure



Highly Available



Tightly Integrated with Other AWS Services

Amazon Elasticsearch Service customers

Software & Internet



IAC

AUTODESK.

Education Technology

INSTRUCTURE

Blackboard

Financial Services



stripe

KICKSTARTER

BioTech and Pharma





Media and Entertainment

NETFLIX

Social Media



ancestry

Nextdoor

Telecommunications



COMCAST

T··Mobile·

Travel & Transportation

Expedia

UBER

Real Estate

Zillow

move

Logistics & Operations

here

infor

Publishing

FT
FINANCIAL
TIMES

ELSEVIER

The Washington Post

Other

Canon

British Gas

SAMSUNG



Storing data is expensive at scale

Limits the data retained for analysis

Miss out on valuable insights

Current solutions fall short

We wanted to do better

INTRODUCING

UltraWarm, a new storage tier for Amazon Elasticsearch Service



Store massive amounts of log data



Run interactive log analytics and visualization

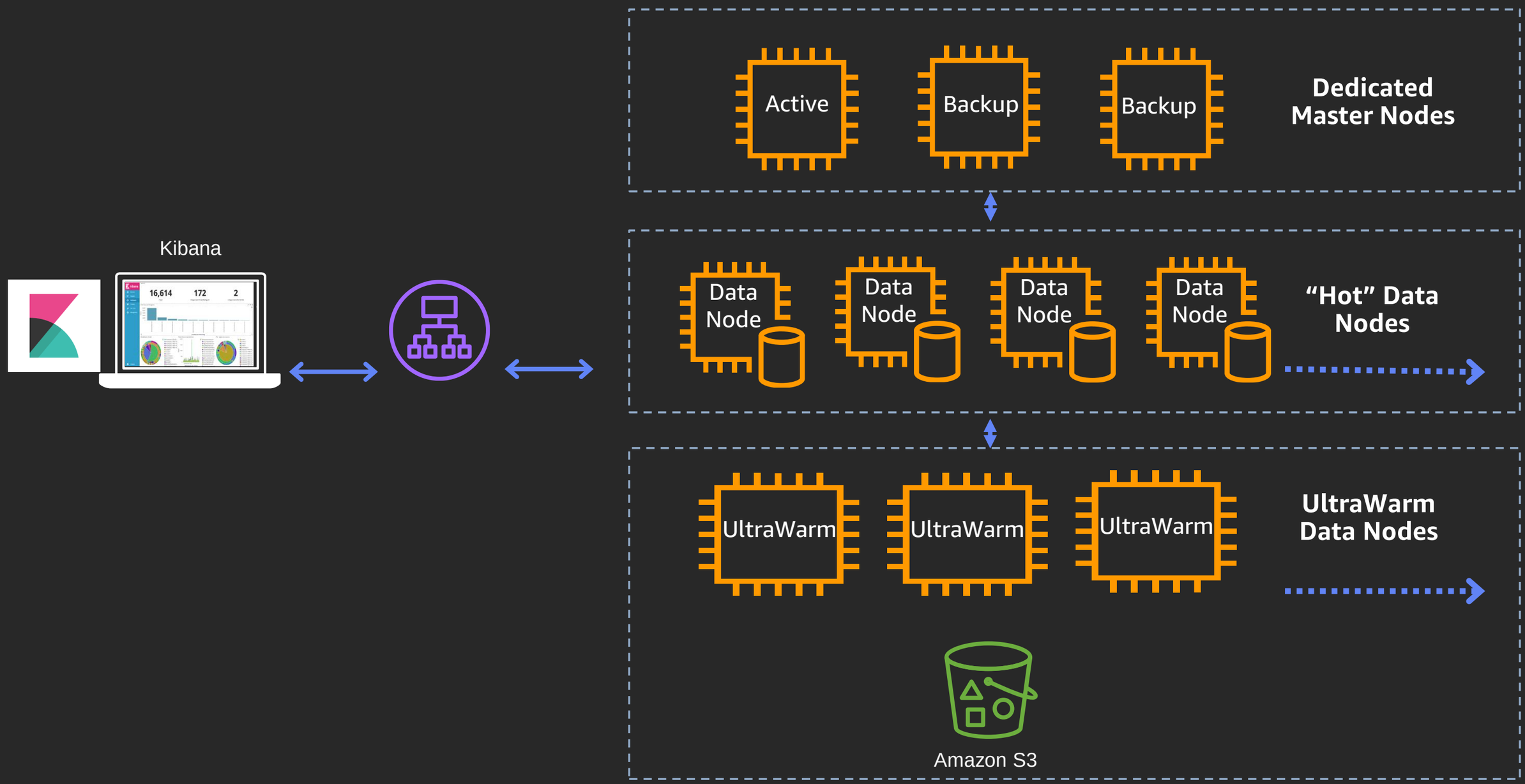


Higher performance and durability



Achieve up to 90% cost savings

Architecture



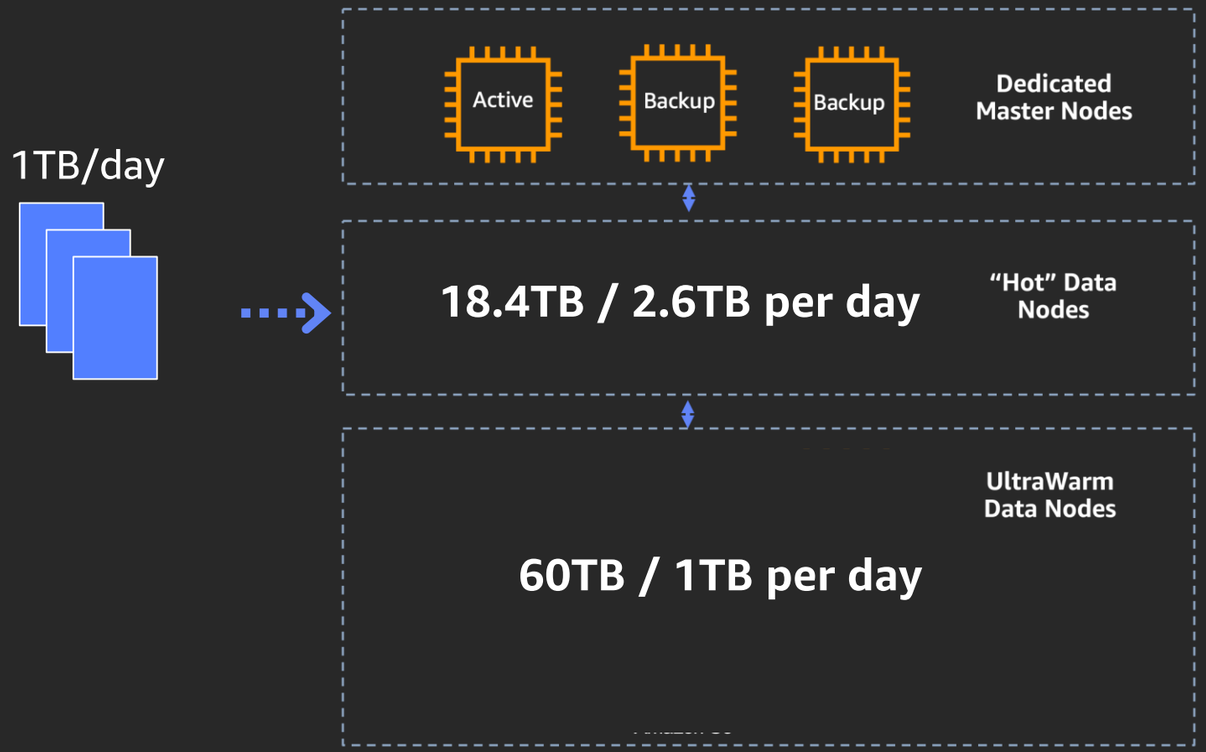
Logging example

1TB per day indexed into hot and retained for 7 days

- ~18.4TB of infrastructure needed in hot (replica + overhead)
- 5 x i3.4xlarge nodes (3.8TB each)

To add 2 additional months of retention

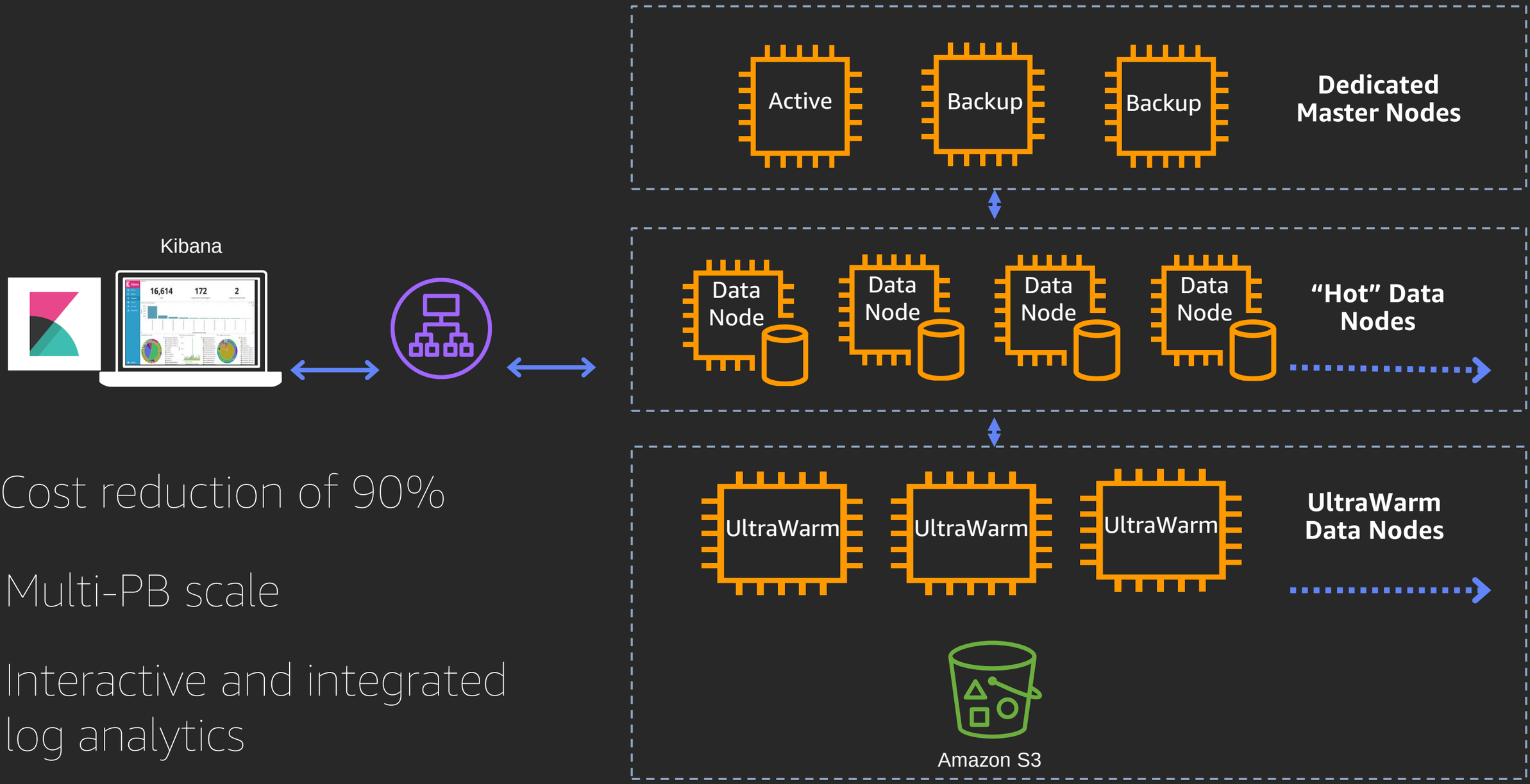
- 60TB of UltraWarm capacity required
- 3 x UltraWarm large (20TB each)



Demo

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UltraWarm: Cloud-optimized architecture for log analytics



Cost reduction of 90%

Multi-PB scale

Interactive and integrated log analytics

Storage: Improved cost, scale, and durability



Store up to 3 PB
of log data

Data stored on S3

Eliminates Elasticsearch-level replicas and snapshots

Supports 100% utilization

Pay for the storage you use

UltraWarm Nodes: Optimized for performance



Higher performance and durability

Optimized Nitro instances provide high bandwidth S3 access

Multi-layered and granular caching, adaptive prefetching, and query engine optimizations to provide interactive experience

Queries transparently run against locally cached or S3 data

Performance in numbers:

- Queries that hit cached data run like hot
- Queries that span many days/indexes of uncached data are up to 2x faster than traditional HDD based warm instances
- Narrow queries on few days/indexes of uncached data finish in seconds

Delivers seamless interactive user experience



Run interactive log analytics and visualization

All these performance optimizations are aimed to give the Kibana experience customers enjoy

- Seamless extension of existing cluster
- Uses the same search APIs and tools as today
- Queries can span hot and UltraWarm without modification
- Interactive dashboards and deep dive queries

Reduces cost per GB to enable longer retention



Achieve 90% cost savings

Comparing to existing service today up to 90% savings on $/GB vs Amazon Elasticsearch Service I3-based hot nodes

Enabling you to keep data accessible to Elasticsearch/Kibana for months and years

INTRODUCING

UltraWarm, a new storage tier for Amazon Elasticsearch Service



Store up to 3 PB of log data



Run interactive log analytics and visualization



Higher performance and durability



Achieve up to 90% cost savings

AVAILABLE IN PREVIEW TODAY

Thank you!

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