AWS re:Invent

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Exploring multi-Region application architecture patterns

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Agenda

- Should you go with a multi-Region deployment?
- Alternatives to consider before deploying multi-Region
- Common multi-Region use cases
- Time for the whiteboard

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Drivers for multi-Region

- Global expansion
- Disaster recovery
- Data residency



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Is this enough to green-light multi-Region deployment?

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Is this enough to green-light multi-Region deployment?

Absolutely not!

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Multi-Region deployment is not trivial



Complexity



Cost



Data sync

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Let’s first explore alternatives to multi-Region

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Choosing the right tool

1. What is the shape of the data?
   Key-value, relational, row, columnar, document, graph

2. What are the application access patterns?
   High throughput / low latency? Heavy on reads? Heavy on writes?

3. Can I benefit from managed services?
   Fault tolerance, less granularity of control, less admin work

4. What are my compute requirements?
   Edge computing, containers, microservices

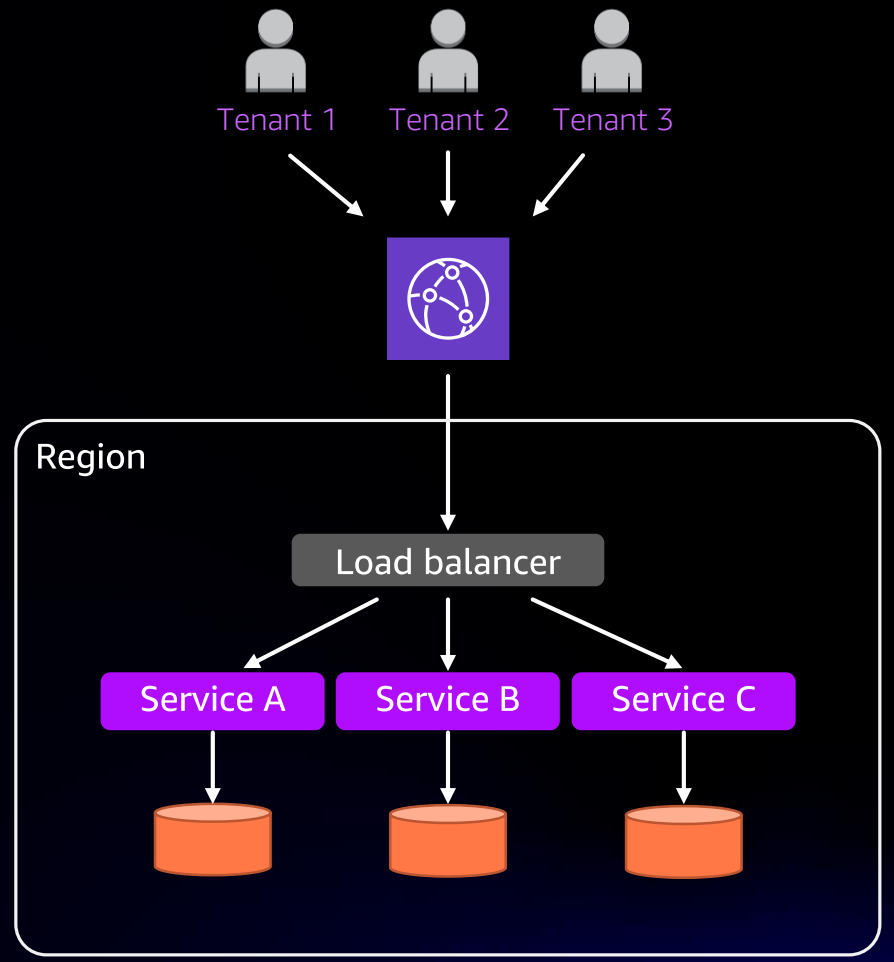
aws

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Amazon CloudFront for static & dynamic content

Alternative #1

- ✓ 275+ Points of Presence
- ✓ Optimized AWS global network
- ✓ WebSocket and HTTP support
- ✓ TLS termination at the edge
- ✓ Use persistent connections to origins

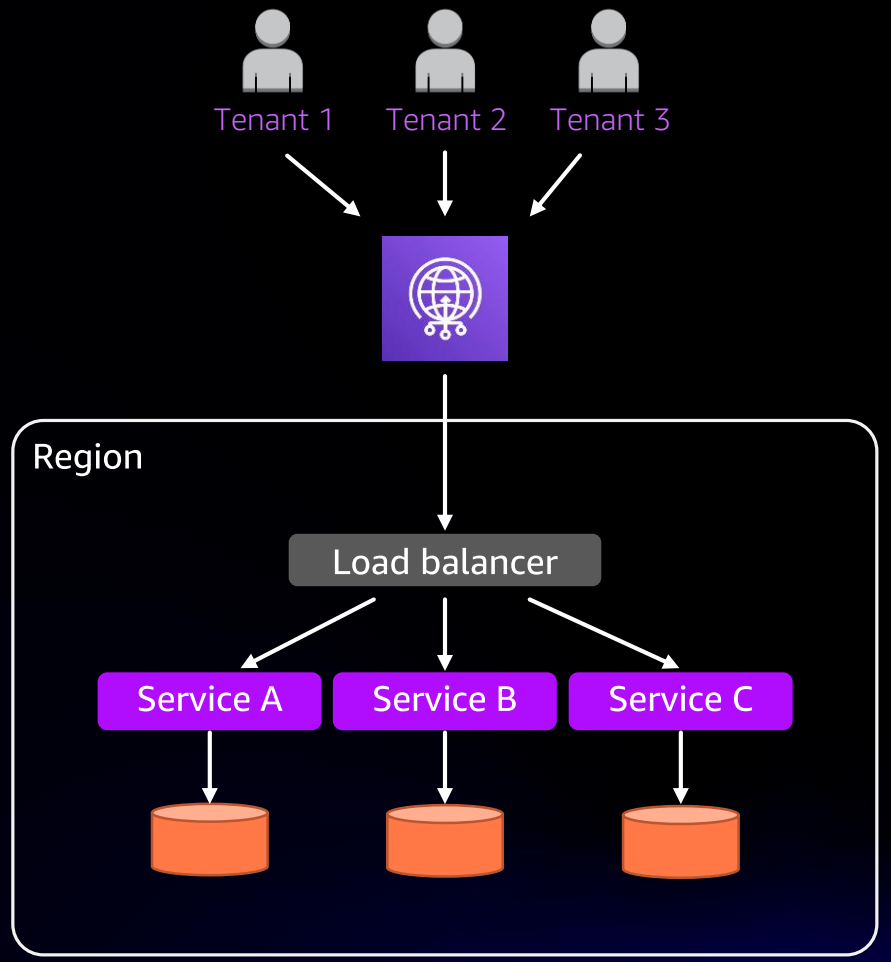


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AWS Global Accelerator for dynamic content

Alternative #2

- ✓ Static IP addresses as fixed entry point (also BYOIP)
- ✓ Improved performance for TCP and UDP traffic
- ✓ Move endpoints between AZs and Regions with no change to clients or DNS configuration

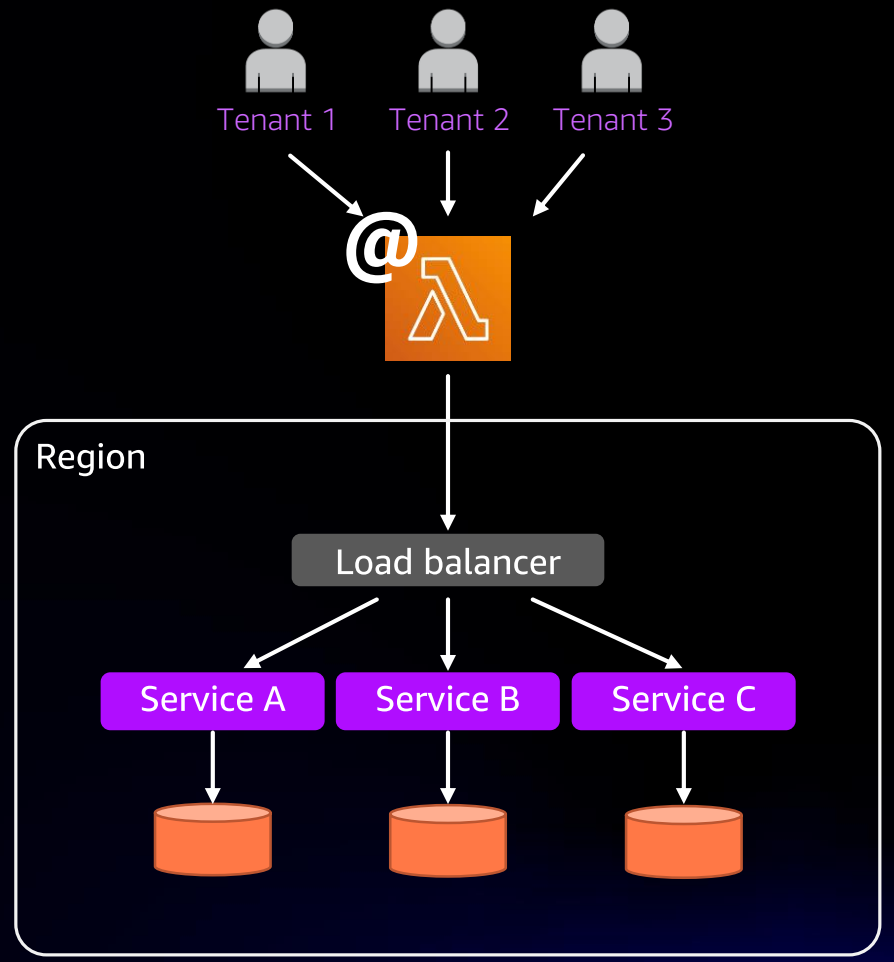


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Lambda@Edge for code execution at the edge

Alternative #3

- ✓ Event-driven code at the edge
- ✓ HTTP redirects (intelligently route across origins)
- ✓ Block unwanted traffic at the edge



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But if none of these options are good enough . . .

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. . . then it’s time for the whiteboard.

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Three common use cases to go multi-Region

1. Low-latency user experience
2. Disaster recovery strategy
3. Data residency requirements

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Thank you!

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