



### Problem

Globally dispersed analytics are faced with resource allocation dilemmas due to unpredictable spikes in demand that can destroy user experience for systems of engagement or complex modeling engines, causing them fail to meet operational requirements.



### Solution

Ensure that data gathering and analytic processing resource gaps can be filled by adjacent, interconnected nodes in the case of unpredictable events. Confirm that response times for systems of engagement and complex modeling can be kept small and predictable by leveraging an ecosystem of service providers. Leverage the interconnected mesh of edge nodes for multicloud connectivity that provides processing resources based on business policies. Ensure that single namespace data lakes at the edge node securely reduce data access times. Install predictive analytics that enable real-time resource allocation actions, including the rerouting of needed data sets to active paths in the case of an outage. Assess user trends and traffic analysis to enable dynamic rewiring of services and connectivity to continually adapt to new regulations, partners and technologies in a 24-hour global cycle.



### Constraints

1. Insufficient bandwidth causes firms to over-provision a fixed-price architecture while primary demand and derivative data collection remain dangerously unpredictable.
2. Centralized volume and bandwidth policy management are harder to establish as demand continues to grow and change in new markets.
3. Service connections are often fixed, especially for complex modeling engines, limiting the responsiveness required during peak events.
4. A mindset change is required to architect a network and its services as a fluid set of interconnections that responds to changing needs.
5. Replication of real-time insights competes with other network traffic, adding to congestion.
6. New analytic models need to be distributed in a managed environment so that APIs and containers are consistent across the mesh.



### Steps

1. Install and enact business policies at the edge that enable dynamic responses to spikes in demand by leveraging local vendor and business ecosystems.
2. Leverage a global ecosystem of digital services (e.g., collaboration for complex modeling) as and when needed to manage costs more effectively.
3. Leverage cross-regional digital ecosystems to find the optimal service chain across clouds by driving replication traffic (e.g., models, insight data, containers) through the interconnected edge mesh for insight and engagement delivery, including data collection cleansing for mobile users crossing into new regions.
4. Leverage predictive analytics to inform policies about real-time changes to demand across the distributed enterprise value chain.
5. Expand analytic services through service chaining to meet regional spikes in demand.



### Forces

- Technology change rapidly accelerates the introduction of new business engagement models, affecting how consumers interact with a company's brand.
- The behavior of systems of insight and engagement is tied to significant, unpredictable fluctuations in consumer demand which will challenge assumptions about capacity management in traditional architectures.
- User mobility across regions creates behavior prediction challenges for engagement-oriented personalization.
- Meeting unpredictable demand must become a strategic asset.
- Planning for periodic shifts in demand is a policy issue, not an engineering project.
- Real-time, flexible, purpose-built infrastructure is a strategic enabler of a global digital enterprise.



### Results

- Technical**
- A dynamic, real-time enterprise that flexibly increases infrastructure supply to meet user experience demands where and when needed, without re-architecting the network.
  - Consistently enhanced local user experience based on local needs and regulations.
  - Add or subtract business value chain members and partners as needed.
  - Enhance business strategy, operations and execution in real time, using actionable insights.
- Business**
- Global, real-time systems of engagement and insight drive, enact and inform business strategy, linking tactical actions to strategic imperatives and marketing to results.
  - Feedback on events, products and services drive an organic change globally with strong regional flavors.
  - Expand services and bandwidth without re-architecting every few years.

### Reference View

