API Management

Problem

As products shift to APIs, these business interfaces could be spread across multiple clouds and PaaS environments. Coordinating the organization's digital brand and end-to-end service levels is challenging.

Solution

Leveraging the architecture from the Network and Security blueprints, establish your external API product platform and deploy API management functions to the inspection zone in edge node(s) to optimize consumer experience. This is, in short, a proxy service (local or SaaS based) for business API access at the digital edge. The inspection zone is optimally placed at the intersection point for all segmented traffic flows, and is therefore the closest point to all consumers, partners and clouds. API requests may come from some or all of those segmented flows and even from inter-metro WAN links as you regionally balance requests. This allows you to configure which external product APIs will be available/consumable by whom, on each segmented network, with policy enforcement and managed SLAs across end-to-end customer experience. While some additional components are still needed, you can leverage boundary and inspection zone services already in place (or look to converged options). Next tailor availability of API products across the other edge nodes and regions.

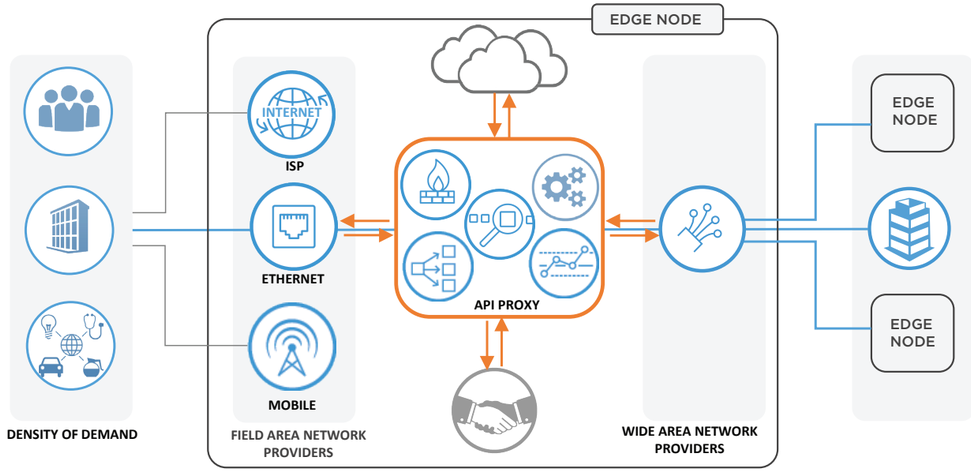
Constraints

1. A website was, in many ways, an e-commerce façade to a disparate set of backend systems. However, it did coordinate a single common external interface to the world. API-centric products require an entirely different architecture and bypass the website.
2. Multiple cloud providers are providing tools to help develop APIs for business products. This is good for kick-starting development of internal-facing APIs, but a corporate strategy needs to be formed first. Where will external interfaces be located?
3. Consumers accessing APIs may have contractual service requirements. In addition, partners may need reseller tools. Will developers be responsible for all the cross-API operational aspects? And will they be globally coordinated into a single story for the customers?

Steps

1. Augment the Boundary and Inspection Zone with API capabilities—either with more SaaS services, or dedicated appliances.
2. One scenario is to place an external API reverse proxy in boundary control (manage authentication, authorization, users, regions, encryption, filtering, etc.) for all APIs, with event processing and an application firewall.
3. Next, inspect authorized API calls, enforce policies and apply event processing (not just logging every call, updating statistics, etc.).
4. "Inspected" API calls go to an internal API gateway (to manage calling downstream internal APIs or publish messages). This layer manages internal versioning, rate limiting, load balancing, etc. Event processing of API calls is also applied.
5. Build all the business (or fulfillment) services behind this API proxy/gateway service with internal APIs.

Reference View



Forces

- In digital, products and services are delivered within an ecosystem. Value comes from being able to cross integrate functionalities.
- This means your products have rich APIs with a great partner/consumer experience, which in turn make it easy to do business with you.
- Since business is now about APIs, business operations management, product management and customer service are expecting APIs to be managed like a business.
- DevOps (hype aside) is about developing new functional products, with built-in operational management and service instrumentation and practices.
- Business performance will come down to overall and end-to-end API execution and customer service.

Results

- Shortest path to business product APIs with lowest localized latency and most efficient bandwidth — maximizing throughput.
- Leverage the intersection point(s) as an optimal place to observe business communications at multiple levels in the stack. Provide E2E SLAs.
- Develop to versioned internal APIs that are registered with API proxy. External APIs in boundary control are more stable (lower tolerance to change).
- Migration from monolithic apps to micro services happens behind the scenes.
- Cloud services can be integrated without performance impact.
- Stamp out designs across other edge nodes for global business platform.