MASHERY WHITEPAPER

7 REASONS

LEADING COMPANIES MANAGE THEIR APIs IN THE CLOUD

MASHERY

WHY DO COMPANIES LIKE EXPEDIA, BEST BUY, AND THE NEW YORK TIMES CHOOSE MASHERY? ONE REASON: THE WORLD'S LEADING API MANAGEMENT SOLUTION IS BUILT FOR THE CLOUD

APIs offer an unprecedented opportunity to expand your company's relationships with customers. That's because they make it easy to deploy content and services in new, ultra-relevant contexts. Those can include your own branded apps, integrations with strategic partners, and co-branded apps built by external developers.

But launching an API means opening new channels of digital distribution. And like offline distributors, you'll be expected to deliver the goods quickly and reliably. If your website goes down, your company suffers; if your API goes down, everyone who relies on your API also suffers.

Over 175 enterprises—including Netflix, Best Buy, Expedia, Dun & Bradstreet, and The New York Times—have turned to Mashery to distribute their APIs. One reason: our global, state-of-the-art API distribution platform is built for the cloud with full **redundancy**, failover and **dynamic scaling** out of the box. Here's how we **maximize security, reliability and speed** for the world's most demanding API providers.

DYNAMIC SCALING

At Mashery, we've seen demand for customers' APIs spike by orders of magnitude overnight. **All it takes is one hot app to plug in your API, and you can scratch early assumptions about capacity.** You need an API management platform that can scale out, not just up.

Mashery's cloud architecture allows us to scale dynamically and limitlessly, with no action required by our customers. In fact, if a solution provider tells you they've architected for the cloud and then says you have to add boxes (or instances) when you reach a certain level of traffic, ask why. A true cloud solution should scale through multiple component instances, across zones and regions.

QUATERNARY FAILOVER

All Mashery customers are protected by 4 levels of redundancy and failover. Mashery is engineered not only for secure zone and region failover, but also for failover between data center providers. In addition to the Mashery Enterprise API Distribution Network (on the Amazon EC2 platform), we've assembled a second network, Mashery Premium, consisting of private co-location facilities around the world.

Primary failover is application failover, in which Mashery functional application components failover to scaled instances. **Secondary failover** is between zones. When a zone fails, traffic is still served from the same location, but functional component instances run in a different zone. **Tertiary failover** happens between locations. In the cloud, this means switching from one region to another (typically the nearest working region). **Quaternary failover** is between networks. The Mashery Enterprise API Distribution Network can failover to the Mashery Premium Network, and vice versa, meaning that for API management, our customers' business continuity planning is completely handled by Mashery.

SMART, FLEXIBLE CACHING

The true consumers of your API are the users of applications built by you and your partners. Just as your website must serve pages quickly, your API must achieve very fast response times. Caching not only speeds responses, but also reduces the load on your infrastructure by minimizing repetitive processing. **We've seen our customers serve as many as 75% of responses from cache, improving response time by 10x or more**. We work with our customers to optimize their caching strategies, and we give them full control over caching policies through our API Control Center.

GLOBAL POPS & GEO-ROUTING

More and more, application deployment and API interactions are happening on a global scale. Likewise, **an API delivery network should consist of Point of Prescences (POPs) in close proximity to API consumers**. Mashery maintains POPs around the world to ensure proximity not only to application users, but also to your API resources. Furthermore, we replicate caches close to API consumers to achieve the best performance.

WATCHDOGS

Watchdogs—a.k.a. monitoring and health check systems—restart or repair inoperative components. They wake up at regular intervals, and if all is well, they go back to sleep. **If there's a problem, they alert us and fix it**. Mashery runs a complex collection of watchdogs built from third-party tools (such as Webmetrics and Nagios) and our own instrumentation. The watchdogs monitor each system level: component, application, zone, region, network, Internet, and our customer data centers. Failover and restart of our components is automatic and dynamic.

APPLICATION-LEVEL REDUNDANCY

Of course, it's standard web development practice to separate presentation, business logic, and data layers. In the cloud, **the low cost of instances allows us to take "separation of concerns" one step further** — by splitting business logic into discrete, redundant functional components that run in their own instances.

Take API traffic management. Mashery's most important task is keeping API traffic flowing securely and in accordance with access policies set by our customers.

To that end, we've broken our architecture into three functional components, each scaling across its own instances:

- Traffic controller: access, security and policy administration
- Logs module: data analysis and reporting
- Data layer: API access policies (database and distributed cache)

The traffic controller must execute even if the data layer is unavailable, so we've split the data layer into a cache and a database. The traffic controller first tries to grab policy data from the distributed cache; if the cache is unavailable, the controller hits the database. This ensures that API calls are handled quickly and dependably. **Traffic continues to flow, even if the database is temporarily unavailable.**

TESTING, TESTING & MORE TESTING

It's one thing to say you've built in redundancy and failover, but quite another to demonstrate it. Mashery customer Netflix famously lets loose Chaos Monkey, a bot that randomly shuts down components on the Netflix production cloud. At Mashery we run regular drills in which we shut down system components to make sure failover measures are in working order.

CONTACT US
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