WEBSCALE

The Simplest Cloud Migration in the World

Redefining Cloud Migration and Management for Digital Brands

There are many options to consider when moving to the cloud, including re-platforming to a cloud-first solution, re-architecting an existing application to be cloud-friendly or just re-building an old, monolithic application into a new one that is cloud native. Each has cost, time and complexity trade-offs that must be carefully considered before proceeding.

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Executive Summary

The cloud has been proven to be the best way to run any business infrastructure, big or small, with its cost, flexibility and availability benefits. Yet there are many options to consider when moving to the cloud, including re-platforming to a cloud-first solution, re-architecting an existing application to be cloud-friendly or just rebuilding an old, monolithic application into a new application that is built for the cloud. Each has cost, time and complexity trade-offs that must be carefully considered before proceeding.

As the leader in cloud management and control, Webscale works extensively with global online businesses to help re-architect or re-define how applications are developed, typically using cloud-native strategies. Our process supports the strong business need to add features, scale, or performance optimizations that would otherwise be difficult to achieve in the application's existing environment.

Webscale has fundamentally redefined cloud migration with a new standard for simplicity, predictability and ongoing management of your application in the cloud. This white paper will go into the details of our process and why we are different.

Cloud Migration	Cloud migration is the process of moving data, applications or other business elements from an organization's existing hosting environment, whether that be an onsite data center, another managed hosting facility or a self-managed public cloud.

Demystifying the Challenges of Cloud Migration

The thought of migrating your application from your servers or managed hosting provider to the cloud is often fraught with pain and confusion. Remember how complicated it was the last time you switched hosting providers? That experience is likely the biggest reason you would never want to migrate again unless your current situation is significantly problematic, such as delivering a poor user experience or causing lost revenue.

Changing hosting providers can seem like an insurmountable task. If moving to the cloud for the first time, considerations such as whether you redefine your application architecture, or lift and shift the entire application, is the starting point for most businesses. Even if moving from one cloud hosting provider to another, questions around security and compliance must be answered, along with the biggest question of all – do I have the skills needed to get it done successfully? The broad opinion is that all migration projects take longer than anticipated, and cost significantly more than budgeted. This opinion is based on the real world experience of thousands of application owners worldwide and is, sadly, broadly true.

How to Define Your Infrastructure Strategy

There are critical questions that every company must answer in order for them to be comfortable with their infrastructure strategy. These questions are designed to give decision makers the power to decide their best path, reducing their dependence on the guidance of IT or their current hosting providers, which may well come with ulterior motives.

- Should the site be built to handle a previously known peak with a proportional cost?
- Should the site be built to handle regular traffic, but to better control costs?
- Do I have to add additional capacity for seasonal demand?
- Does my strategy address the potential impact of influencer marketing? Does it give the marketing department the freedom to invite millions of interested visitors to sites?
- What does re-architecting an application mean and how does it impact security, performance and availability?

Typical websites with less than 10K unique visitors, hosted in a data center.
Lower costs, limited capacity

Client   Internet Cloud   Database

Expanded architecture for sites in managed hosting environments,
as they grow to 200K-1M visitors. High cost, fixed capacity

Client   Internet Cloud   Firewall   Load Balancer   Cache   Web Servers

Database Servers
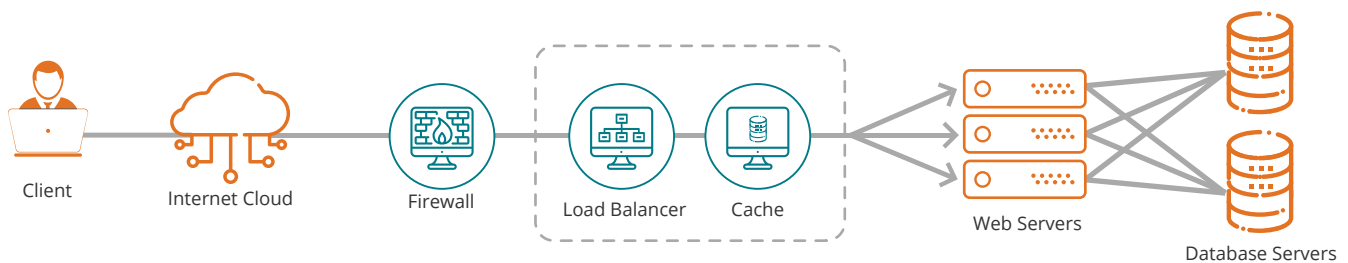
Multi-cloud flexible infrastructure for customers of all sizes, traffic-based cost and capacity based on demand, integrated security, access, performance and disaster recovery

WEBSCALE
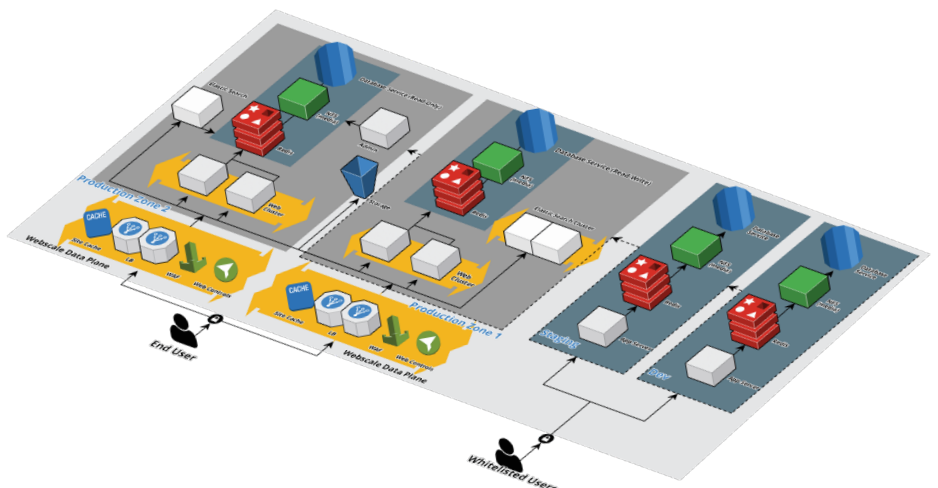
Why Re-architect?

Re-architecting any web application, for example dynamic websites built on WordPress, Drupal, Ruby or Joomla or specific ecommerce platforms like Magento (Community or Enterprise) or WooCommerce, which may typically be deployed as a monolithic environment, is an inevitable step for growing online businesses. In its early days, the business deploys its web application within a hosting provider's static environment, typically with one or two servers. As the business grows, the greater demands it places on its web application lead to issues with scalability, concurrency, checkout slowness and ultimately poor user experience and lost revenue. A monolithic application looks like the image below.

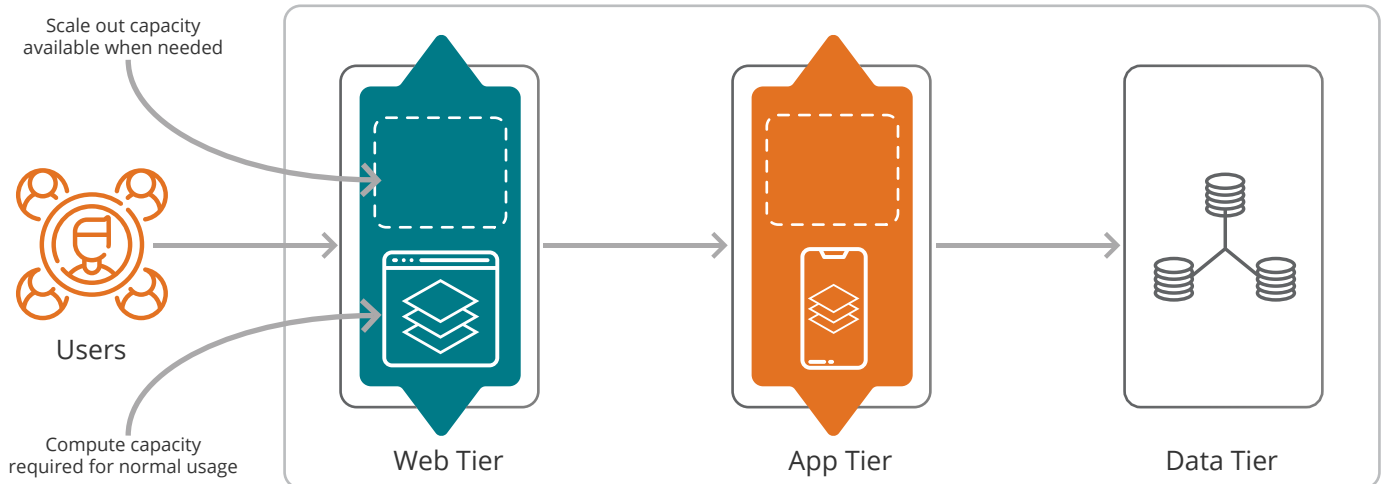| Users | Web Tier | App Tier | Data Tier |
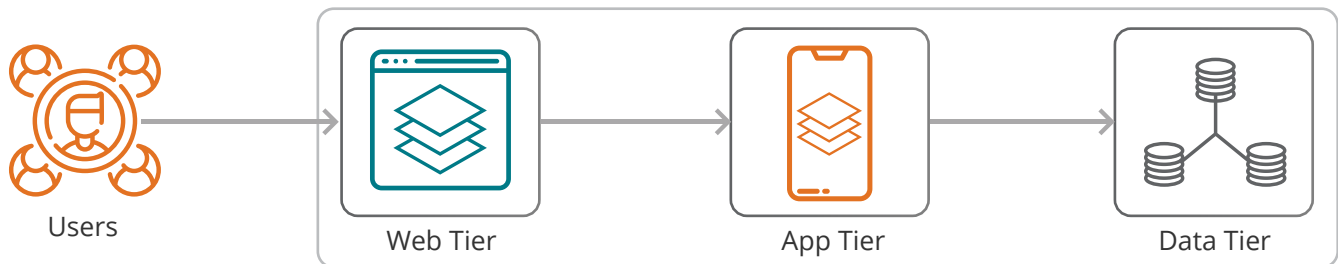
Re-architecting the Webscale Way

The re-architecting process made possible by Webscale's auto-provisioning system is the simplest way to upgrade your application, achieving massive scalability and high performance. The process broadly includes the following steps.

- Identify the pieces of the application and its related connections or integrations to third parties.

- Break down the components of the application to identify known bottlenecks.

- Restructure the components so that they are conducive to scale out when the need arises and with a focus on stable response times, CPU utilization and overall application behavior.

- Build up a security posture that works well for a cloud-ready application including block/allow lists based on IP or geography or a combination, geo-fencing as needed, virtual patching and other known security elements.

- Add critical components like full-page caching, a basic CDN, varnish caching, correct database access practices with the definition of a read-only data server for administrative access, restriction of administrative access using a bastion host instead of direct access into production and a multitude of best practices that lead to 100% uptime, high performance and end-end security.

- This system, once defined in code, is available to rebuild from backup, create a new staging environment or testing code before deployment. The concept of auto-provisioning has also been known to reduce the incidence of human error significantly within these high value environments.

As can be seen in the image below, a restructured application is broken down into its individual components to provide infinite scale out, truly leveraging cloud environments as a utility – paid for when needed and disassembled when not. Right-sized infrastructure for ecommerce sites can be the single largest source of cost management and user satisfaction if done right. And with Webscale, it is always done right.

Scale out capacity available when needed

Users

Compute capacity required for normal usage

Web Tier

App Tier

Data Tier

Auto-provisioning

Webscale has deployed hundreds of applications to the cloud, and developed tools to make the process fast, seamless and above all else, simple.
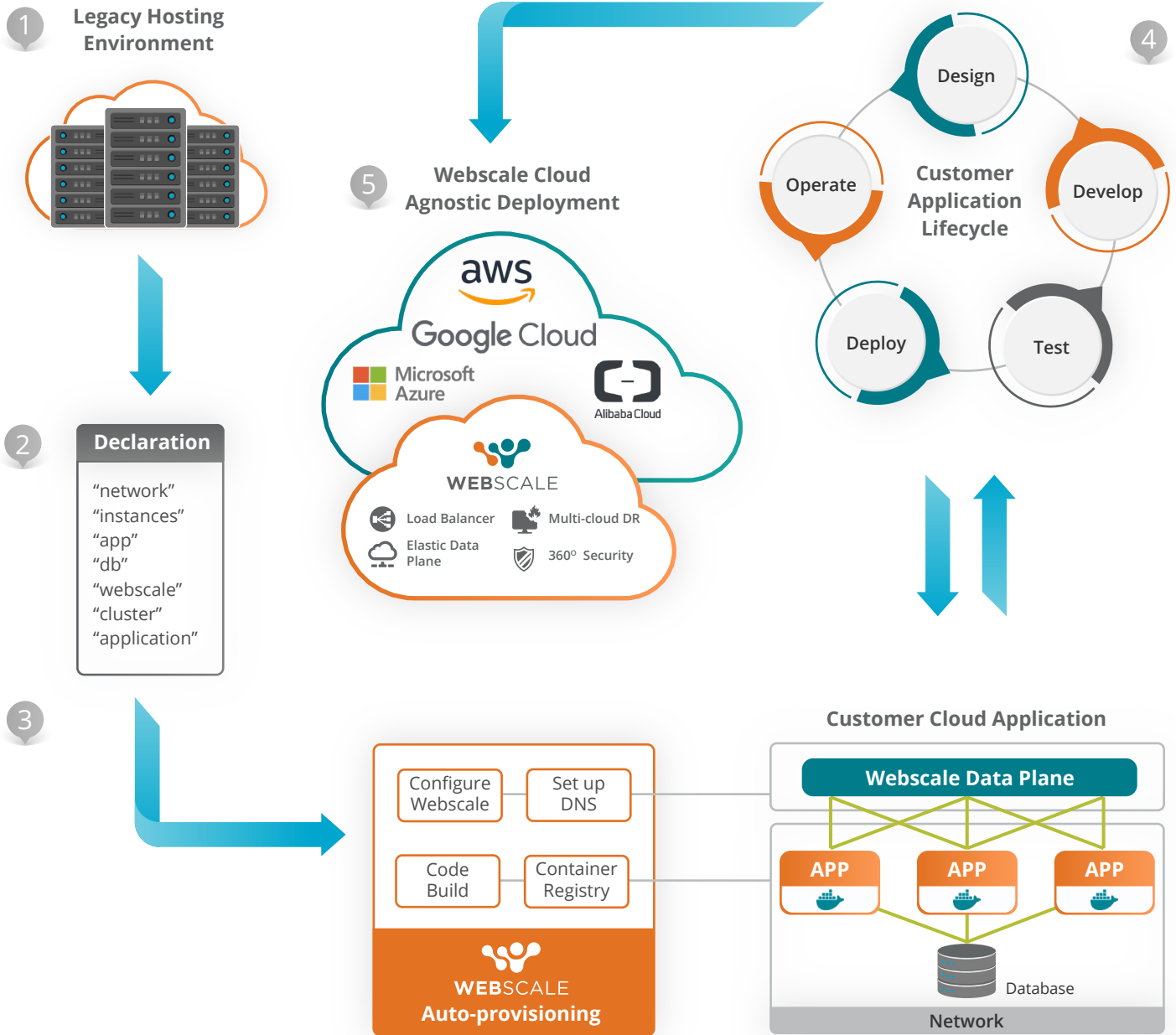
With these auto-provisioning systems integrated into the Webscale cloud architecture, future deployments, staging environments, rebuilds and new applications become painless, one-click operations. It's why we call it the "simplest cloud migration in the world."

The Webscale auto-provisioning system manages thousands of servers globally across different cloud providers by 'turning infrastructure into code' and making that infrastructure flexible, versionable, human-readable, and testable. This allows the infrastructure to adapt to changing business needs like scale out/in, performance, security and migration.

With Webscale, you get

- Speed and consistency for cloud migration.
- Hassle-free, seamless transitions to a stateless application architecture for scale out.
- Experienced project management.
- Proven migration plans that minimize downtime.

Webscale Auto-Provisioning Workflow

1 **Legacy Hosting Environment**

5 **Webscale Cloud Agnostic Deployment**

4 **Customer Application Lifecycle**

Design

Operate

Develop

Deploy

Test

aws

Google Cloud

Microsoft Azure

Alibaba Cloud

WEBSCALE

Load Balancer   Multi-cloud DR

Elastic Data Plane   360° Security

2 **Declaration**

"network"
"instances"
"app"
"db"
"webscale"
"cluster"
"application"

3

Configure Webscale   Set up DNS

Code Build   Container Registry

WEBSCALE
Auto-provisioning

Customer Cloud Application

Webscale Data Plane

APP   APP   APP

Database

Network

WEBSCALE

The Webscale Cloud Migration Process

The Timeline

A standard deployment for a web application, moving from a static hosting environment to a cloud provider like AWS or Google should take no more than four weeks.

The Process

Webscale will schedule a kick-off call to establish a formal handoff from sales to sales engineering and implementation, and then to migration. During this call we will handle formal introductions, establish roles and responsibilities, and agree on a timeline that works well for both parties. Below we've outlined our migration process, what's included with the management and monitoring of the application.

Phase 1	Phase 2	Phase 3	Phase 4
Planning	Code Migration	Validation and Acceptance Testing	GO LIVE
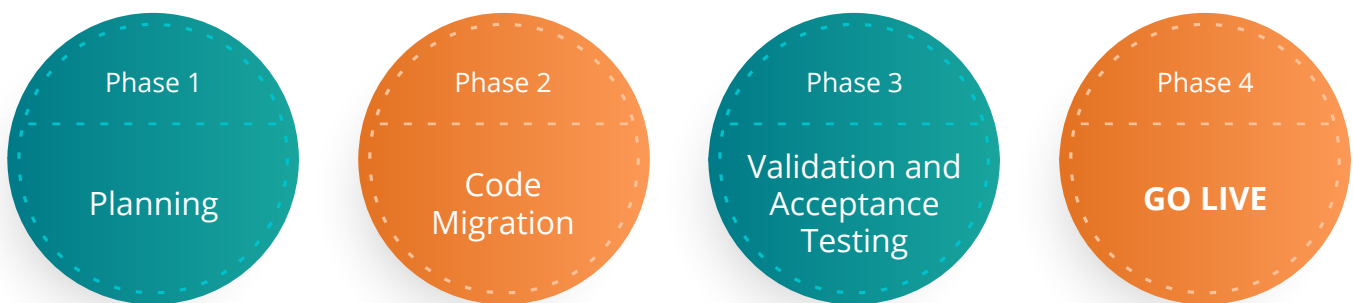
Phase 1

I. Analysis of current architecture
II. IAM access in cloud environment

Phase 2

III. Provisioning of cloud environment (Webscale)
IV. Transfer of application code and data
V. Webscale setup

- Define and test scaling application cluster (without Webscale)
- Define and test application cluster (with Webscale)
- Configuration of all domains
- Configure and test HTTPS

Phase 3

VI. Validation of site functionality

- Home Page
- Category pages
- Product pages
- Cart
- Checkout (up to submitting payment)

VII. Customer to validate site, administrative, and external integration functionality

- Administrative activities
- Payment processing
- Warehouse/inventory/ERP/CRM/shipping
- Load testing
- Begin replication of the production database into the Webscale production environment

Phase 4

VIII. Site migration

- Existing application/site placed in maintenance mode
- Terminate database replication
- Validation testing
- DNS change to new cloud environment

The Final Product

1. An auto-provisioned customer application, in the cloud and under source control

2. The Webscale deployment customized for your application and under source control

3. Integrated continuous delivery, enabling zero-downtime code updates

4. Integrated security and access management to development, staging and production environments

5. Integrated daily backups

6. Integrated multi-cloud disaster recovery solutions

7. Cloud IaaS best practices to define the proposed architecture

8. The cloud architecture especially sized based on your usage patterns under source control

9. The Webscale Data Plane with significant performance, security and availability enhancements

10. A knowledgeable 24/7 global support team for human escalation

A Track Record of Success

Webscale is the only multi-cloud solution that enables ecommerce businesses to rapidly migrate their storefronts to the cloud, enabling 100% uptime at peak demand for the last seven years. Based out of Silicon Valley, Webscale has expanded globally to manage thousands of storefronts across nine countries and seven of the Fortune 1000 companies.

100%	Uptime During Peak Sale Events	520M	Cyber Threats Mitigated in 2020	$18B+	GMV Processed in 2020
8	Years of Flawless Holiday Seasons	75%	Average Reduction in TCO	50+	Cloud Provider Certifications

About Webscale

Webscale is the world's safest cloud management and hosting provider focused exclusively on ecommerce. Offering enterprise-grade security, predictive scalability and blazing-fast performance, the Webscale SaaS platform leverages automation and DevOps protocols to simplify the deployment, management and maintenance of infrastructure in multi-cloud environments, including Amazon Web Services, Google Cloud Platform, and Microsoft Azure. Webscale powers thousands of B2C, B2B, and B2E ecommerce storefronts in nine countries and seven of the Fortune 1000 businesses and has offices in Santa Clara, CA, Boulder, CO, and Bangalore, India.

For more information, visit www.webscale.com