Better Boomi in AWS

How to Migrate and Manage Boomi Integrations in AWS

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Introduction and Overview

Why Implement Boomi in the AWS Cloud?

Learn the why and the how in this Kitepipe AWS Integration Best Practices guidebook. Download a copy for best practices in migrating and managing Boomi integrations in AWS, and explore two customer use cases.

This e-Book focuses on workflows that cover traditional enterprise use cases found in a cloud-forward business. Whether you have a cloud instance in AWS or are contemplating options to get to the cloud in a big way, consider using AWS with Boomi. These best practices and tips can help validate or formulate your strategy.

Better Boomi in AWS describes a transformation of traditional processes. There are challenges associated with this journey in the areas of security, operations and life-cycle management, using a DevOps framework. The concepts discussed may be supplemented with a free assessment of your existing or planned Boomi and AWS infrastructure by Kitepipe's certified Boomi and AWS technical experts. If you are not a Boomi customer yet, we can provide some insight into your integration platform as a service (iPaaS) or middleware evaluation process.
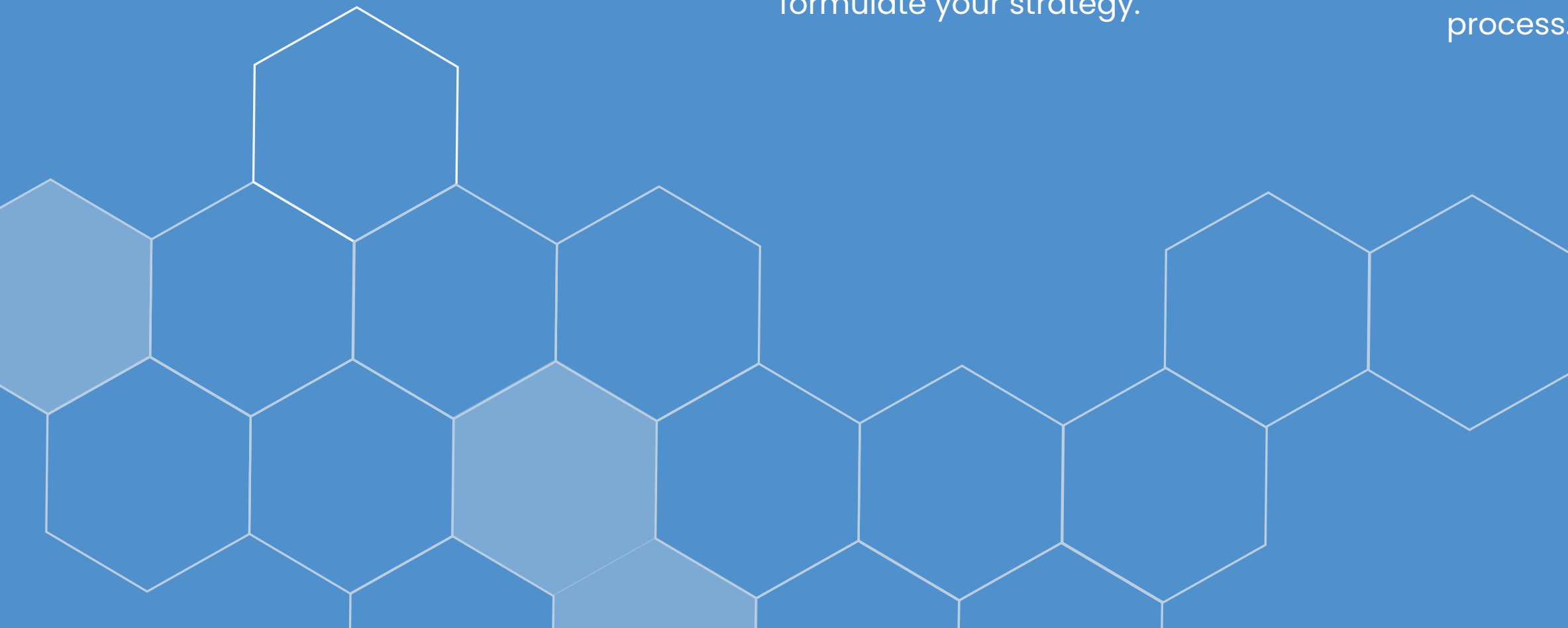
Best Practices for AWS + Boomi

Public Cloud integration is moving at a rapid pace as businesses plan to reduce infrastructure costs and the internal resources required to manage both the infrastructure and associated applications and workloads.

Gartner, a global technology consulting company, discusses that technology providers should use indicators of growth in cloud adoption as a measure for market opportunity. They divide the market into four cloud categories:

- System infrastructure
- Infrastructure software
- Application software
- Business process outsourcing

Currently, the largest shift of IT spending is in application software – 40% of companies that have used other means to host their software have moved or will move to the cloud.

Close the Skills Gap

Combining a Boomi iPaaS initiative with an AWS cloud computing framework and business model provides the accelerated change that businesses and IT leaders require today. Managed Boomi in AWS can help close the skills gap, clear out long project queues with efficient integration, and combine business process modernization roadmaps with a cloud strategy.

The Boomi platform brings a best-in-class, low-code integration suite, rated for the last eight years as a Gartner Magic Quadrant leader, and now used by over 20,000 global businesses. Experience matters, and Kitepipe is a 10-year Boomi partner that performs over 100 integration projects per year, using all aspects of the Boomi technology stack.

Quick Build

For reliable business process integrations, the AWS infrastructure with a DevOps scripting technology can create the Boomi runtime environment and onboard customers in 30 days. This includes test environments with the production configuration to allow new integrations, or a migration of existing workloads to be tested and deployed quickly. Time-to-market, reliability and security are the watchwords of the Boomi AWS managed infrastructure.

Continuous Updates

The special sauce of working with Kitepipe and the Boomi Managed Cloud Services (MCS) team in AWS is our scripted standard configurations that support a continuous update cycle, ensuring both AWS and Boomi are always current and stable. Environment monitoring, using embedded agents and proactive metric analyses, provides the framework of reliability that is the cornerstone of your AWS deployments. The standard configurations provide the cost optimization and return on investment, with the heavy lifting performed by the Kitepipe team, freeing your IT resources for other innovation and daily tasks.

This guidebook is for customers who have requirements to integrate their standard SaaS endpoints (like ERP, CRM, e-commerce or omni-channel distribution and supply chain solutions) in a managed AWS environment, using the Boomi platform. These applications can include cloud leaders like Salesforce, SAP, Oracle, Dynamics, Coupa, Workday and others that are supported by the hundreds of Boomi ready-made connectors. In addition to core integrations of business processes, our team can stand up API gateways to expose your environment to partners and customers, as well as provide a full EDI suite for onboarding and managing trading partners.

IT and business leaders who need to get integrations done quickly with a low internal resource investment model using AWS and Boomi will benefit from a managed services strategy with Kitepipe.

The simple recipe for this strategy is:

1 Build
We create the AWS infrastructure environment that fits your use cases and integration requirements.

2 Deploy
Using the test compute nodes, we create new integrations or migrate existing business processes in AWS, either as a DIY or with our expert Boomi developers. Then, we move those to the production nodes for the commercial go-live.

3 Manage
Rely on our full service, 24/7 support team to manage and maintain the AWS components, the Boomi Atoms, and to keep current all of your Boomi processes in AWS.

Chapter 1: The AWS Framework and Service Options

Cloud computing on AWS provides flexible and scalable capacity, managed services, built-in security, multiple options for cost optimization, and a variety of operating models. The AWS cloud includes many design patterns and architectural options that can be applied to a wide variety of use cases referred to as 'workloads.' The AWS Well Architected Framework is built on five core pillars:

Operational Excellence
Support development and run workloads effectively
Key metric: % of processes that are automated

Security
Protect data systems and assets
Key metric: Security compliance value against standards

Reliability
Implement workloads through a total life cycle correctly and consistently
Key metric: Uptime and compliance to the SLA

Performance Efficiency
Use computing resources efficiently through changing demand and technologies
Key metric: Time-to-market and visibility to quality metrics

Cost Optimization
Deliver business value at the lowest price point
Key metric: Return on investment versus legacy solutions

By focusing on these core principles, a Boomi integration in AWS may be evaluated against the Well Architected Framework. This will reveal risk areas to be prioritized and rectified over time to achieve best practices in AWS cloud integration management.

Built on Best Practices

The AWS public cloud provides many compute, load balancing, access and network connection options to meet the requirements for Boomi integrations as a managed service. The Kitepipe solutions are based on working with Boomi and AWS since 2020, initially in a lab environment, then in joint customers' AWS organizations, and now in Kitepipe-managed AWS organizations. This has informed our best practices with a focus on reserve compute instances using the EC2 or elastic cloud computing nodes, as a stable and proven infrastructure environment for Boomi.

The selected configurations consider the following capabilities:

- Computing across availability zones

- Test and production environments

- Node sizing and quantity based on use case and expected load

- Load balancing

- Direct access and shared storage

- Connectivity requirements based on your IT strategies for the public cloud

- Security considerations using AWS best practices and the IAM roles model

The goal of creating standard baseline configurations is to support the continuous deployment model that is essential to managing the AWS and Boomi environments efficiently. This provides a regular cycle of updates in both the infrastructure layer of the Boomi platform and application integration framework. Kitepipe uses a combination of Terraform, CircleCI and a Github repository to interface with the AWS Control Tower for this ongoing maintenance DevOps cycle.

Support Your AWS Configuration with a Rich Set of Service Offerings

We use both third-party services and core AWS service offerings in the infrastructure that include:

- Control Tower

- Security Hub

- IAM access roles

- CloudWatch

- Datadog Monitoring Agents and Dashboards

- Terraform Scripting for CI/CD

- Support for global customers and follow the sun services

- PagerDuty to supplement the support teams

Chapter 2: Define Your Boomi Strategy for AWS

"Boomi is one of the most recognized brands in the Enterprise iPaaS market and is highly respected by both users and competitors. Boomi's initiatives focus on clients' challenges relating to employee and customer onboarding, event-driven architecture and enabling the integration strategy empowerment team."

– From Gartner iPaaS Magic Quadrant

When starting a Boomi strategy for AWS, it's important to evaluate your current or projected Boomi environment. This is an opportunity to consolidate common integration components and features. Here are some common questions:

New Projects/Applications

Are there new applications coming online that change the landscape and needs for the integration layer?

Boomi Runtime Infrastructure

Is it time to upgrade the Boomi atoms, or gain more control by moving off the Boomi-hosted cloud atoms?

Integration Pain Points

Are there operational issues that must be addressed in the integration space? Data quality, Master Data Management, reruns, alerts and error handling, EDI/business partner management, security and throughput are a few of the issues that are commonly seen in Kitepipe's integration practice.

Think at scale using short executions along a trajectory to a long-term AWS program.

Forward-thinking organizations are implementing the integration layer in the cloud for strategic advantage. Examples of integration layer components and features are:
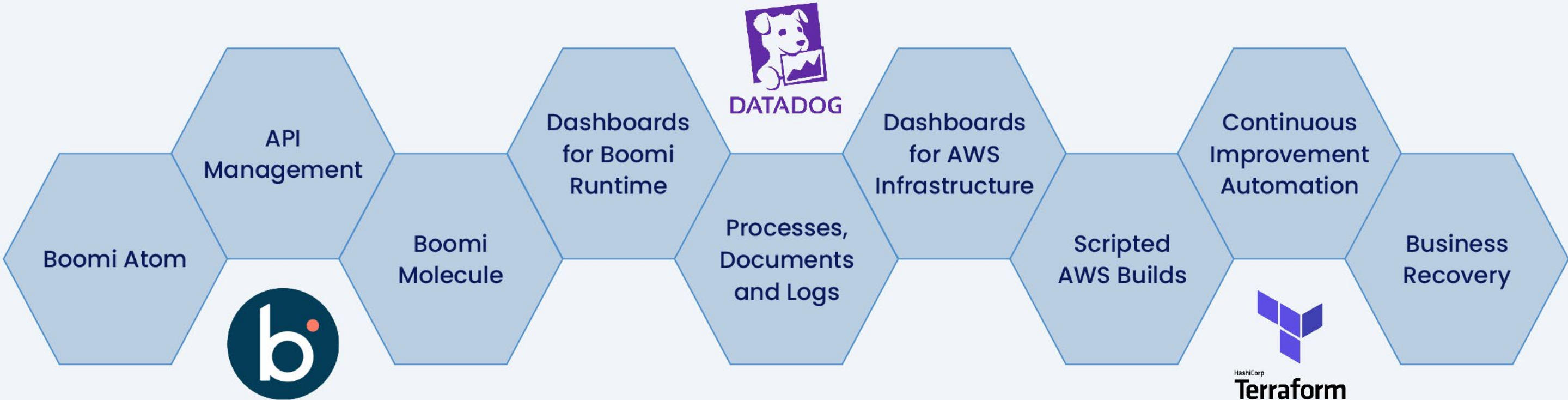
Chapter 3: Define Your Boomi Use Cases

Boomi provides a low-code iPaaS and pre-built connectors to simplify the application and data integration experience for customers using AWS. Many customers who are moving to a public cloud need to reconnect or re-architect traditional legacy integrations to the new infrastructure environment that leverages AWS services. For AWS customers, Boomi delivers an easily scalable integration platform to move, manage, govern and orchestrate data across applications — on-premises or in the cloud. As a unified, cloud-native iPaaS, Boomi accelerates your ability to integrate every part of your connected business.
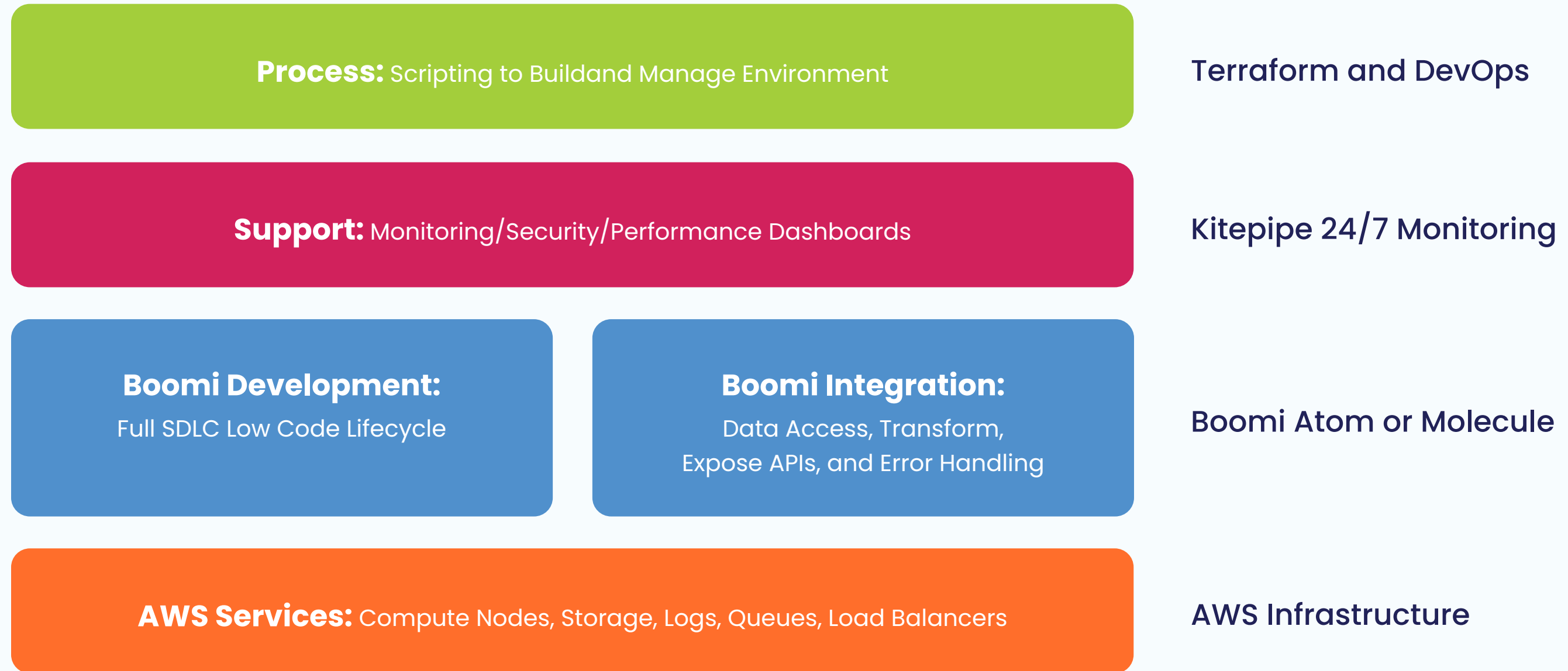
Boomi Components

An important part of use case discovery is how Boomi is deployed in AWS. Boomi has two primary components: a Build/Manage SaaS application in the cloud, and an Execution/Runtime engine where the Boomi processes execute. This is a Java Virtual Machine, referred to as an Atom in Boomi terms, that can run in a data center, in the Boomi-hosted cloud, or in a public cloud like AWS. New Boomi customers can start directly in AWS, bypassing any private cloud or data center installations to get started.

High Availability

There is also a runtime version that is a robust instantiation of the Atom, called a Molecule. A Molecule supports enhanced high availability in a multi-node compute environment, and is load balanced across those nodes or Availability Zones. Molecules can support increased throughput and high volume workloads and pair with API gateways that are exposed to customers or partners. As our customers' requirements demand the rigor of a Molecule configuration, AWS is the natural computing environment to stand up that solution.

Architecture: Kitepipe's Advanced Boomi Management in AWS

Process: Scripting to Buildand Manage Environment

Terraform and DevOps

Support: Monitoring/Security/Performance Dashboards

Kitepipe 24/7 Monitoring

Boomi Development:
Full SDLC Low Code Lifecycle

Boomi Integration:
Data Access, Transform, Expose APIs, and Error Handling

Boomi Atom or Molecule

AWS Services: Compute Nodes, Storage, Logs, Queues, Load Balancers

AWS Infrastructure

Why manage your Boomi in AWS?

Kitepipe works with a wide range of Boomi customers, across many industries and integration use cases. There are several profiles of customers who seek to move Boomi to AWS:

1 Migrate Workloads from On-Premise or Hybrid

It is no secret that businesses are moving compute power from on-premise data centers to cloud-based hosting. The Great Resignation, the high-profile security breaches of 2021, and supply chain scrambles of the pandemic have all contributed to CIOs, CTOs and CEOs asking, "Why aren't we in the cloud yet?" As a specialized, but off-the-shelf computing load, Boomi is a prime candidate to move out of the data center or hybrid cloud.

2 Create New Cloud Integrations

Cloud applications like SAP, Salesforce, NetSuite, Coupa and Workday, to name a few, require an integration to complete the business process or workflow. Using a middleware platform like Boomi in a managed services environment is a quick and scalable method to connect the applications.

3 Outgrowing the Boomi-Hosted Atom

Boomi provides hosting in the Boomi Atom Cloud as part of the licensing package, but with limitations. These limitations include volume/transaction limits, performance limitations, and functionality barriers around connectivity, authentication, and response time.

4 Migrating from an Atom to a Molecule

As loads increase and more business workflows are added to the Boomi iPaaS platform, it makes sense to create a multi-node high availability configuration to ensure 24/7 reliability and scalability in the public AWS cloud.

5 Connect to the Outside World

Boomi has a rich set of API management and authentication tools that enable enterprises to quickly host, configure, and expose APIs to customers, business partners, and branches. The AWS cloud is a great place to host and manage these Boomi components.

6 Traditional EDI B2B Process Management

EDI is moving to a managed services model and is now being combined with APIs for e-commerce along with traditional supply chain and purchase transactions. Boomi's B2B module can be combined with APIs to keep pace with changing supply chain and logistics trends.

Benefits to moving components of the integration layer to AWS are:

- Addressing the skills gap exasperated by the Great Resignation
- Doing more integration with less internal resources
- Promoting employee efficiency and well-being
- Addressing project backlogs and clear the queue
- Combining digital transformation with a cloud strategy

Chapter 4: Standard Configurations & Templates

The Boomi platform allows for a flexible deployment model, including on premise, private cloud, hybrid configurations or—the focus of this paper—the AWS cloud. There may be reasons to use a combination of installation models depending on your requirements and workloads. The Atom and Molecule are the basic building blocks for Boomi integrations and are used based on the selected model.

## Boomi as a Managed Cloud Service

Kitepipe, in conjunction with the Boomi MCS team, has developed a set of standard configurations that are offered as a fully managed and hosted service. These configurations are sized for the medium-sized business, or Commercial Boomi tier, and all include:

- All AWS infrastructure and compute fees

- Onboarding with a scripted build and configuration management

- Boomi Atom or Molecule sizing and configuration, with API Gateway as a standard configuration

- A VPN option for connectivity to customer infrastructure environments

- AWS CloudWatch and guardrails security management

- All patches and updates in a DevOps continuous update scenario

- Datadog monitoring suite covering the AWS infrastructure with additional Boomi JVM performance, API and batch Boomi process performance, with security and configuration tracking (if we are also watching the Boomi workloads in AWS)

- Ticketing management resolution services using Jira

- 24/7 management and support to the standard Boomi SLA

Boomi Managed Services in AWS: The Components that Define Better Boomi in AWS
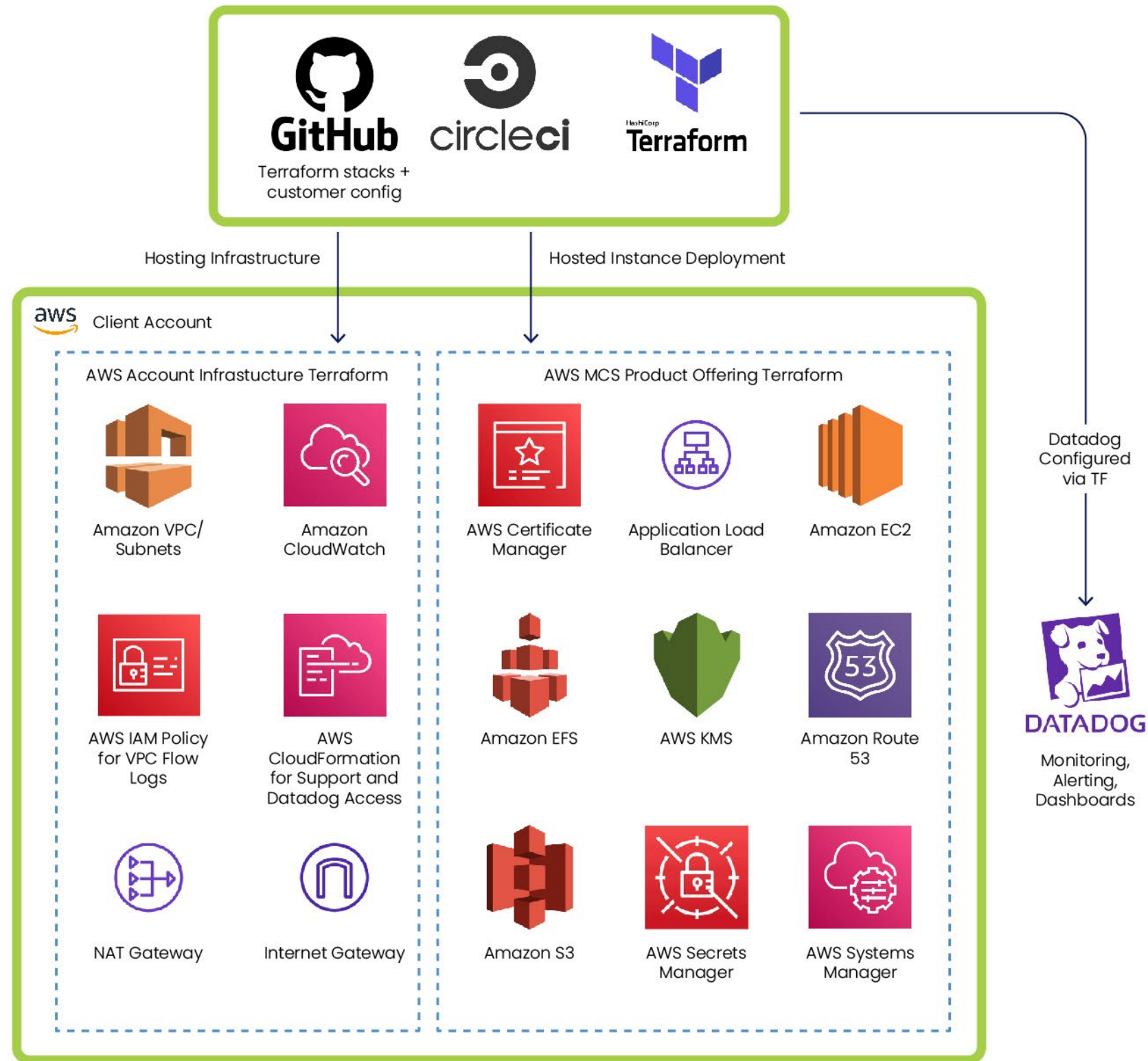
Boomi runs in these standard sets of configurations, based on the performance, reliability, and functionality needs of the customer. Kitepipe offers a cloud-migration configuration for each scenario. The standard Boomi cloud configurations are:

1 Cloud Atom

Single-node Atom for basic batch processing and API listener roles

2 Cloud Molecule

Multi-node Molecule configured for high availability and batch process throughput

3 API Management

Multi-node external API gateway plus high availability Molecule, suitable for customer/partner/branch API connectivity, EDI, and enterprise-scale batch processing

Each Kitepipe-configured Boomi Production environment has a matching Test environment.

Environment Features

- **A highly available architecture** for the Molecule that spans two availability zones

- **Multiple EC2 instances** that support test and production

- **Elastic File System** for shared files and resources

- **Application Load Balancing**

- **A virtual private cloud** configured with public and private subnets according to AWS best practices, that provides your own virtual network on AWS

- **Boomi API Gateway** for use cases that require exposing APIs

The subnet configuration created by the template, may also be deployed in an existing VPC.

A key part of the AWS + Boomi deployment is to have a development, Test and Production environment to support the natural integration lifecycle and iteration phases.

Additional Components

- **VPN connection** to network/on-premise endpoints

- **API functionality** with load balancing and access control

- **Master Data Hub access**

- **EDI/External partner connectivity** with firewall/DMZ configuration

Harness the power of the Boomi Molecule

in the AWS cloud.
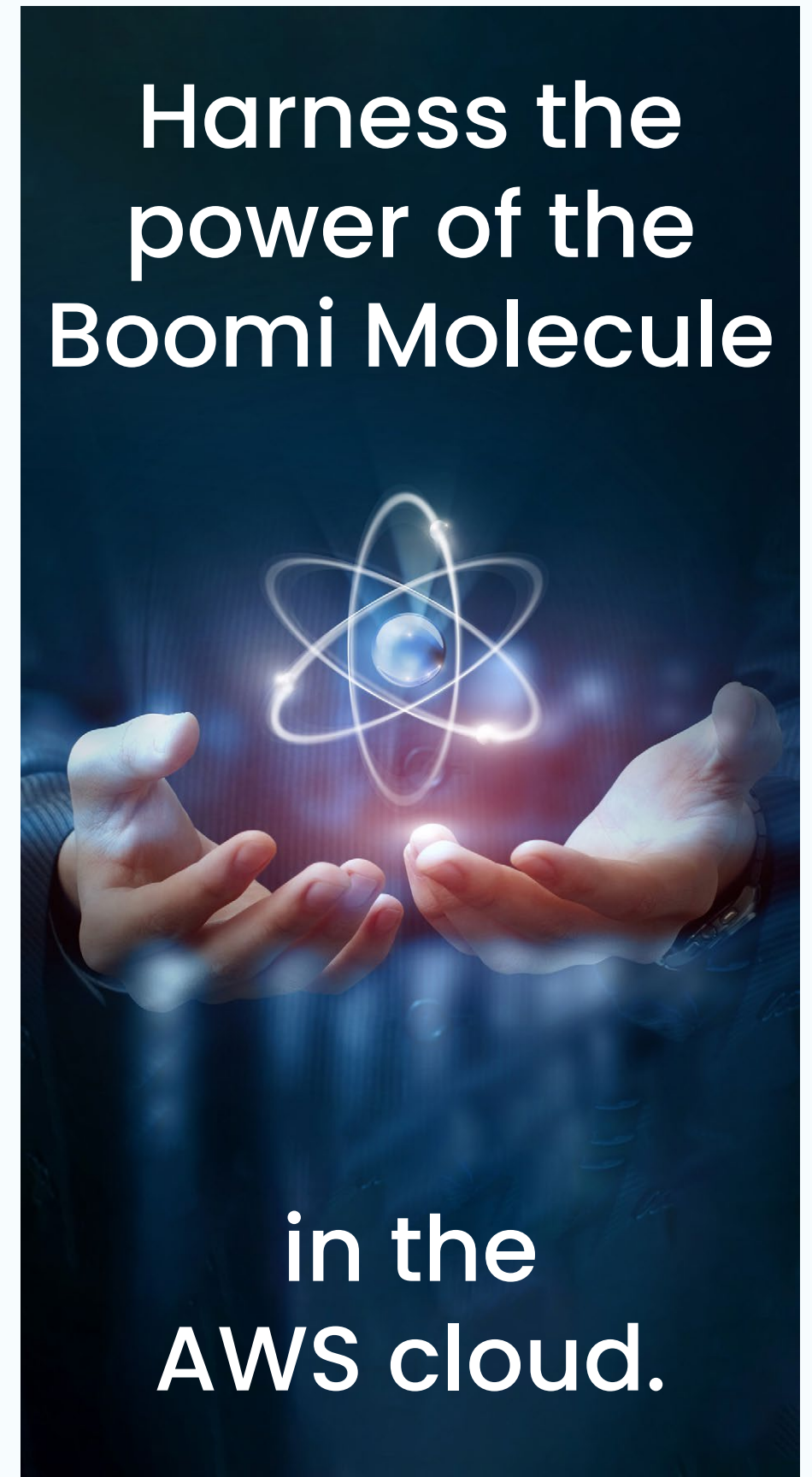
Chapter 5: Best Practices Review & Case Studies

Over the past few years, we've worked with customers in their environments and ours to determine our best practices guidelines. Kitepipe and the Boomi Managed Cloud Services team have collaborated on the configuration of an ideal Boomi hosted solution in AWS.

Anyone looking to set up and maintain Boomi in AWS should think about these best practices:

- Right-sized AWS EC2 instances as compute nodes for Atom, Molecule or API gateways

- Boomi runs well in Linux and we recommend that over other options

- Shared EFS storage for high availability, with local block store for certain items that require i/o speed

- S3 Buckets for logging and archiving, as needed

- Compute nodes spread across multiple availability zones

- A standardized VPN or peering solution, if required

- AWS load balancers and networking services for the Molecule and API configurations

- Regular backups and a disaster or business recovery standard operation procedure

- Vending machine and Guardrails to manage account creation and access

- Terraform scripts to deliver a fast, consistent CI/CD build and maintain

- Embedded Datadog agents to support compute and services monitoring

- 24/7 monitoring and alerting for infrastructure and process problems

Customer Case Study:
Ideal Image

Ideal Image is the nation's leading aesthetics brand with a vision to make personal aesthetics and wellness more affordable, accessible and effective than ever before. With a team of experts to provide honest answers and create a personalized plan to meet the customers goals and deliver results that can be seen and felt.

AWS Use Case

With 170 retail points of presence nationwide and in Canada, the Ideal Image stores require quick integration to back-end and partner systems while customers are being assisted by the in-store teams for wellness services.

Configuration

High availability Molecule with an API Gateway

Integrations and End Points

Partner and in-house APIs, CRM and finance partners

Customer Speaks

"Kitepipe's AWS Managed Services offering has enabled us to scale APIs quickly on Boomi, removing the lead time and cost of infrastructure implementation."

- Mike Marsh, Senior Director for Application Development, Ideal Image

Customer Case Study:
Bunn-O-Matic

Since 1957, Bunn-O-Matic Corporation (BUNN®) has been at the forefront of dispensed beverage equipment manufacturers. Founded upon five generations of family entrepreneurship, BUNN has become a global partner that customers count on for reliable beverage equipment and outstanding post-purchase support wherever those customers are served.

AWS Use Case

Servicing the thousands of outlets where BUNN beverage dispensary equipment is supplying customer and partner brands with equipment and supplies requires coordination between the service partners and the back-end BUNN systems.

Configuration

Large Atom with Production and Test environments

Integrations and End Points

The migration of Boomi-based Salesforce and SAP listeners and integrations from an on premise environment to AWS

Customer Speaks

"Our partnership with Kitepipe leveraging AWS cloud has allowed us to move to a fully-managed Boomi environment which results in our resources having more time to focus on other initiatives and not day-to-day support of the solution or infrastructure. We also anticipate having a more resilient and stable operating platform for our Boomi integrations while having the ability to tap into the product expertise of their Boomi subject matter experts."

*- Michael Dulceak, Vice President, IT Shared Services, Bunn-O-Matic*

Summary and Appendices

The AWS + Boomi cloud integration journey and execution strategy will provide many benefits realized by the tens of thousands of successful AWS cloud customers and over 20,000 Boomi customers with production integrations.

Combining these two leading and powerful technical capabilities that have many paths, options and tradeoffs, into a single seamless solution across the entire enterprise is a challenge. Consider supplementing your internal discovery with an outside viewpoint.

Key Takeaways and Actions

- Initiate a discovery with available experts, like a Kitepipe or Boomi Solution Engineer or AWS architect.

- Plan for an easy lift assessment of your Boomi plans and strategies that will result in a simple work plan and pricing model.

Better Boomi in AWS
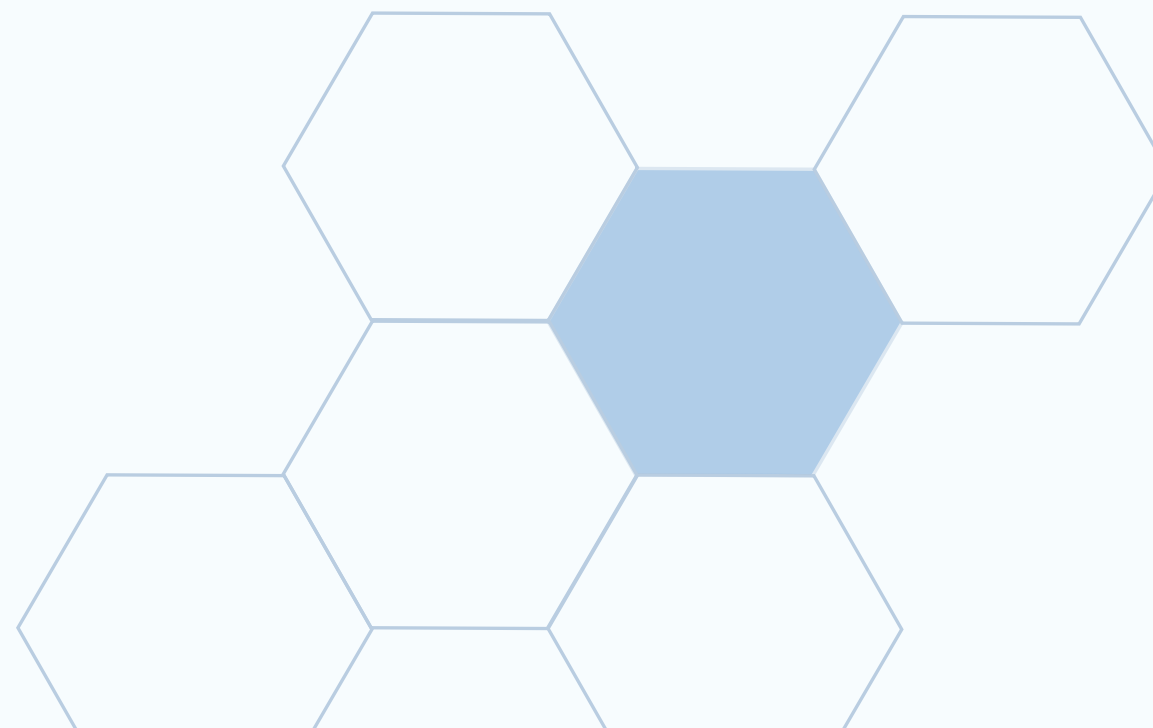
Definition of Terms

AWS Terms

Application Load Balancer

The load balancer distributes incoming application traffic across multiple targets, such as EC2 instances, in multiple Availability Zones, increasing the availability of your application.

Availability Zones

A logical data center in a region available for use by any AWS customer. Each zone in a region has redundant and separate power, networking and connectivity to reduce the likelihood of two zones failing simultaneously.

CloudWatch

CloudWatch collects monitoring and operational data in the form of logs, metrics, and events, providing you with a unified view of AWS resources, applications, and services that run on AWS and on-premise servers.

Control Tower

AWS service to set up and automate a multi-account environment with governance.

EC2

Core Amazon compute service that provides secure, resizable compute capacity in the cloud. It is designed to make web-scale cloud computing easier for developers. Amazon EC2's simple web service interface allows you to obtain and configure capacity with minimal friction.

Elastic File System

Provides a simple, serverless, set-and-forget, elastic file system that lets you share file data without provisioning or managing storage. It can be used with AWS cloud services and on-premise resources, and is built to scale on demand without disrupting applications.

IAM

Identity and Access Management: a web service that helps you securely control access to AWS resources. You use IAM to control who is authenticated (signed in) and authorized (has permissions) to use resources.

Landing Zone

A well-architected, multi-account AWS environment that is scalable and secure.

Regions

Amazon EC2 is hosted in multiple locations world-wide. These locations are composed of Regions with Availability Zones.

S3

Simple Storage Service: core Amazon database service that provides storage for the internet with a simple web services interface that you can use to store and retrieve any amount of data anytime from anywhere on the web.

Systems Manager

Provides the operations hub for AWS with a unified user interface so you can track and resolve operational issues across your AWS applications and resources from a central place.

Well Architected Framework

A structure that helps cloud architects build the most secure, high-performing, resilient, and efficient infrastructure possible for their applications. The framework provides a consistent approach for customers and partners to evaluate architectures, and provides guidance to implement designs that scale with your application needs over time.

Boomi Terms

API Management

API lifecycle management using the Boomi iPaaS cloud environment. Configure APIs and expose real-time integrations, enforce contracts and policies with an API gateway.

Atom

Lightweight runtime engine that is the building block of Boomi integrations.

Boomi iPaaS

On-demand, multi-tenant cloud integration platform for connecting cloud and on-premises applications and data. The platform enables customers to design cloud-based integration processes called Atoms and transfer data between cloud and on-premises applications.

Canvas

Drag-and-drop interface for configuring Boomi integrations.

Integration

Point to Point Connections: Efficient baseline integrations between common cloud platforms that support business units, customers, workflows, processes, and partner ecosystem with application connectors.

Master Data Hub

Cloud native master data management solution that becomes the center of various data and application silos. Common data records are mastered and shared across applications with standard governance and approval flows for flexibility, scale and security.

Molecule

A single-tenant, clustered runtime that runs separately from the platform, enabling multiple processes to run concurrently. The Boomi Molecule can be deployed across multiple servers to enhance load balancing and ensure high availability for mission-critical integration processes.

Commmon Cloud Endpoints

Coupa

Business spend management software with a focus on supply chain, inventory and expenses. Coupa use cases are a great candidate for data mastering.

Jira

Initially a ticketing and bug/issue tracking service that has evolved into a work management solution. Jira can be a workflow to manage errors and integration transaction anomalies.

NetSuite

Flagship ERP software for medium sized businesses acquired by Oracle. NetSuite is a target endpoint for close to cash use cases.

Oracle ERP Cloud

The Oracle cloud suite is a market leader across many business use cases, driven by a number of acquisitions over the last 20 years. Oracle integrations are complex and benefit from an AWS + Boomi platform strategy.

Salesforce.com

Leader in CRM and the end point source and target of many cloud integrations.

SAP

Market share leader in large enterprises with over 400K global customers. Also a complex integration environment that can benefit from an iPaaS strategy.

Workday

Human resources cloud software or HCM (Human Capital Management), that has the most market share across the enterprise. Workday is a great candidate for mastering employee data, as it touches all business empowerment solutions.

Other Terms

CI/CD and DevOps

These terms are closely tied and provide the best practices and execution tools that enable the rapid and reliable delivery of code changes and support continuous product development.

ERP

Enterprise Resource Planning is a long used term that encompasses accounting, procurement, project management, expenses and other business processes. Dominated by Microsoft, SAP and Oracle as suite providers, but recently new cloud entrants provide best-of-class solutions.

Gartner Magic Quadrant

Gartner is a leading consulting firm that uses a quadrant ranking system for different classes of technology. Boomi is consistently in the top quadrant in their iPaaS solution evaluations.

iPaaS

Integrated platform as a service is a term for cloud-based middleware that provides tools and capabilities to easily integrate disparate business solutions that require data and workflow sharing.

MOP

Method of Procedures is an operation playbook or a step-by-step sequence for executing complex tasks. Also called a standard operating procedure, it is controlled via scripts and templates in the AWS + Boomi environment.

VPC

A virtual private cloud is the logical division of a service provider's public cloud multi-tenant architecture to support private cloud computing. It is allocated within a public cloud environment, providing a certain level of isolation between the different organizations.

Workload

Workloads are an AWS term that describes a collection of resources and code that delivers business value, such as a customer-facing application or a backend process.

Kitepipe Partners and 3RD Product Components

CircleCI

Provides the execution workflows that manage the scripted CI/CD.

Github

Provides the repository for the customer-managed services configurations.

Terraform

A HashiCorp company providing the scripting language that configures each customer infrastructure build in AWS. The combination of Github, Circle CI and Terraform provides Kitepipe the ability to continuously update the infrastructure, provide business recovery and ensure the standard AWS builds are always current and updated.

Datadog

Provides monitoring and dashboard services to Kitepipe under a partnership that provides tools for both our Boomi and AWS teams to support the AWS environment.

PagerDuty

Ensures that support team members are notified and provided with incident information via the integrated option with service notifications and tickets.

Trek10

Provides the Kitepipe support team with 24/7 support capabilities in a global, follow-the sun model.
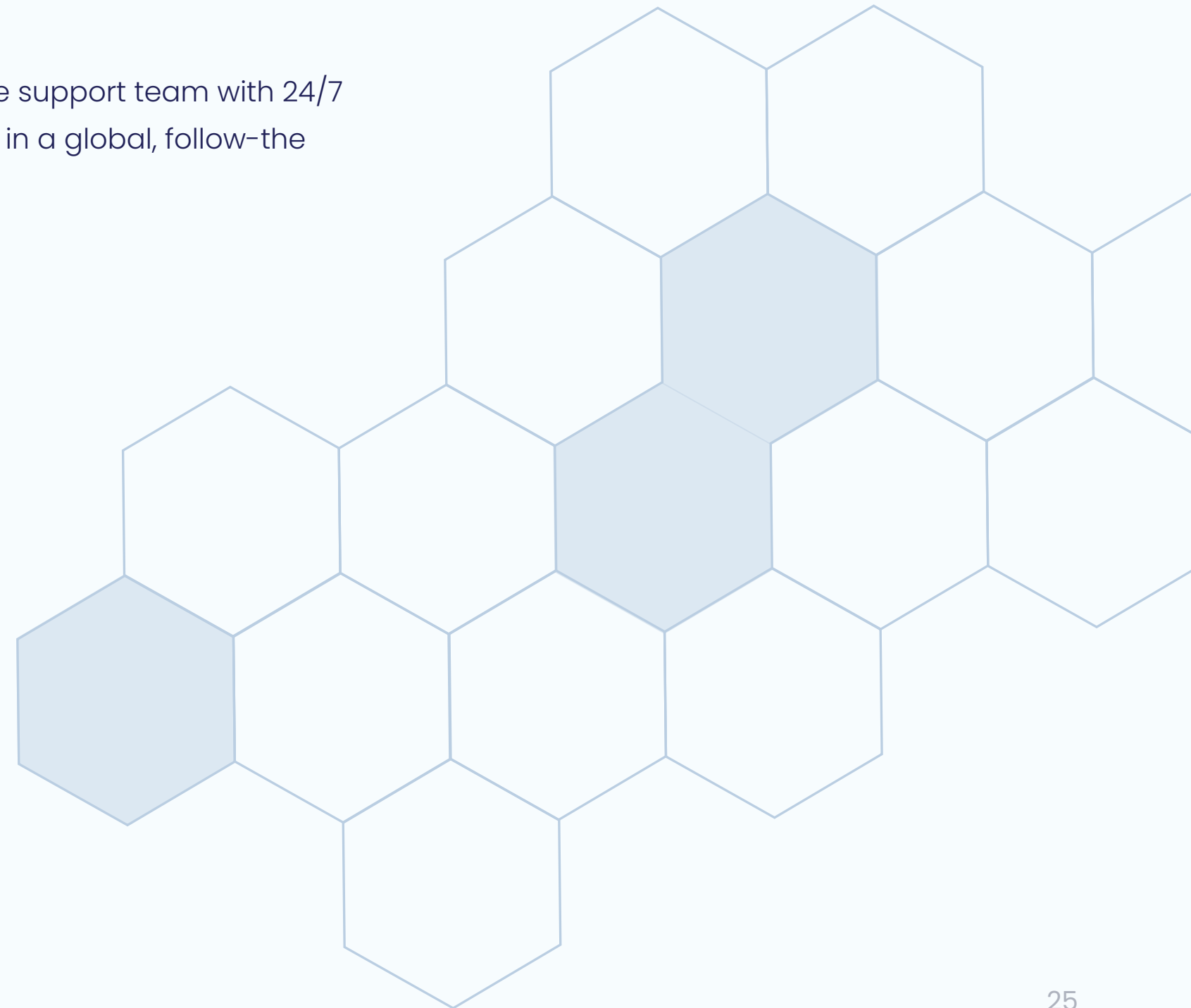
Contact us today at **BoomiHelp@kitepipe.com** and engage our Solution Architects in crafting the right AWS integration environment for your enterprise, or visit **kitepipe.com** for more information.

About Kitepipe

Founded in 2011, Kitepipe is a Boomi Platinum Implementation Partner, and is the premier Boomi integration development team in North America. After using Boomi to streamline the integration strategy at their cloud-based software firm, Kitepipe founder Larry Cone saw the need for a Boomi-focused services team that could deliver all the promise of this powerful platform.

Today, the Kitepipe team of certified Boomi on-shore developers helps dozens of Boomi customers and SIs quickly achieve business value with the industry-leading Boomi integration platform.

Kitepipe is dedicated to helping enterprises streamline operations and improve data quality, exclusively with Boomi integration. Our Boomi practice is one of the largest in the world, averaging 100 Boomi integration projects a year across all verticals. Kitepipe is the leader in a number of integration areas, verticals and domains, including AWS migrations, Biotech, NetSuite, SAP, Coupa, Workday and HRIS, Data Mart/BI and many other endpoints.