

Agility

Ongoing, repeated adaptation to
meet the challenges of the
enterprise.

Scalability



Modularity



Composability



Governance

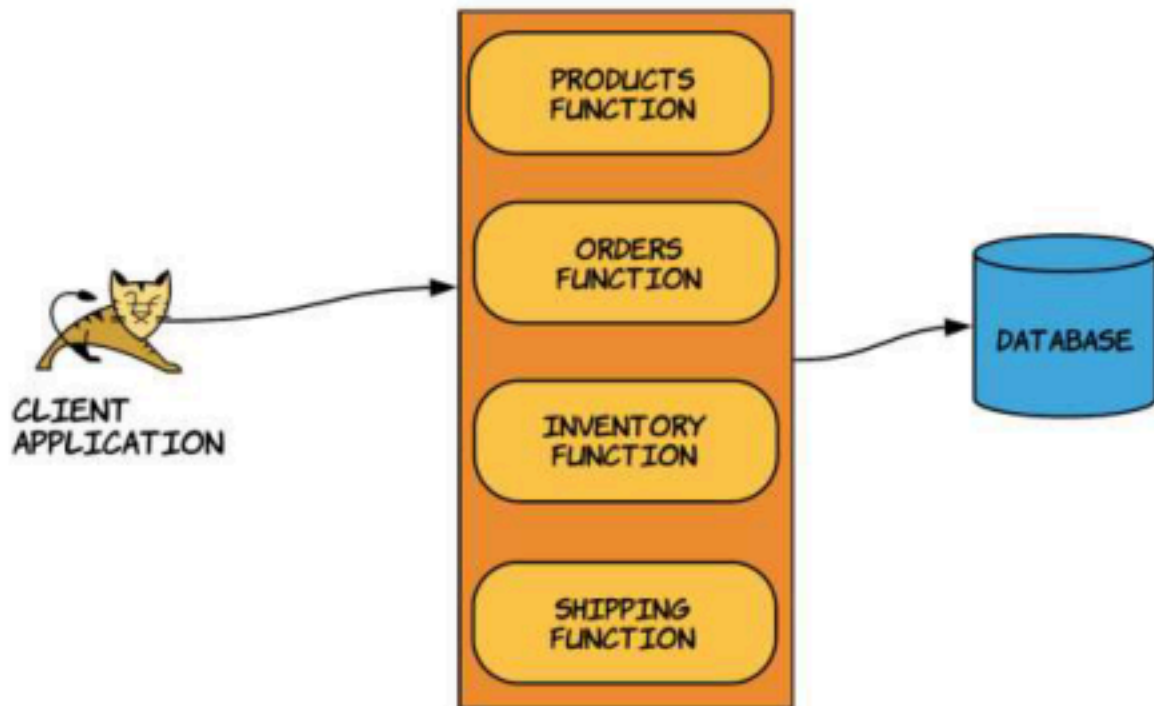
Modern businesses are consumer driven



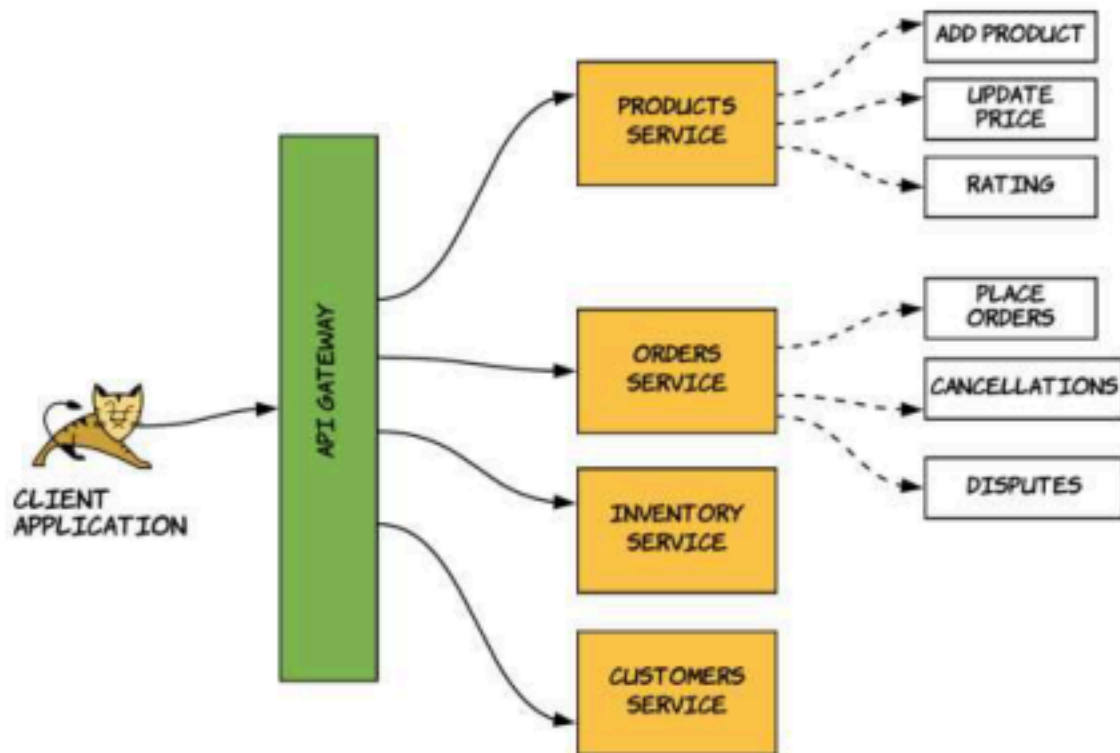
Image source: newsd.in

Traditionally centralized enterprise architectures no longer deliver on the expectations of the business and consumers.

Breaking down the Monolith



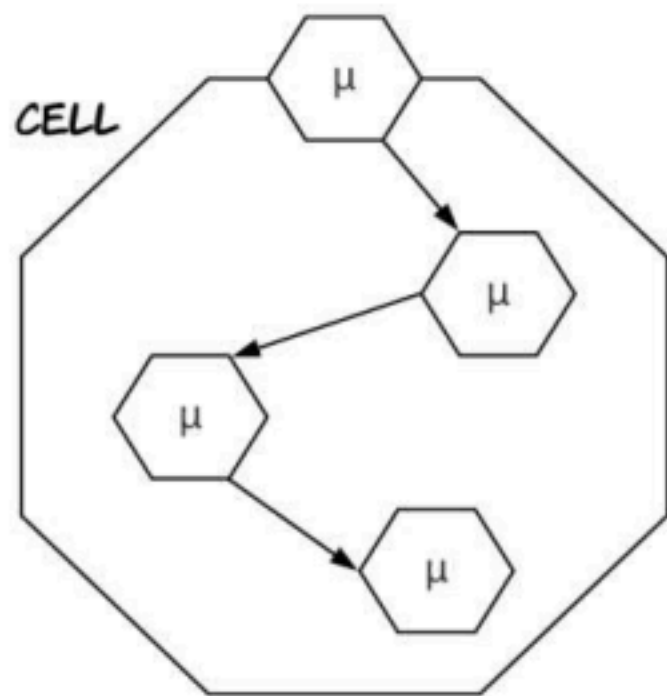
Breaking down the Monolith: Delivering Services as APIs



Problems with this architecture

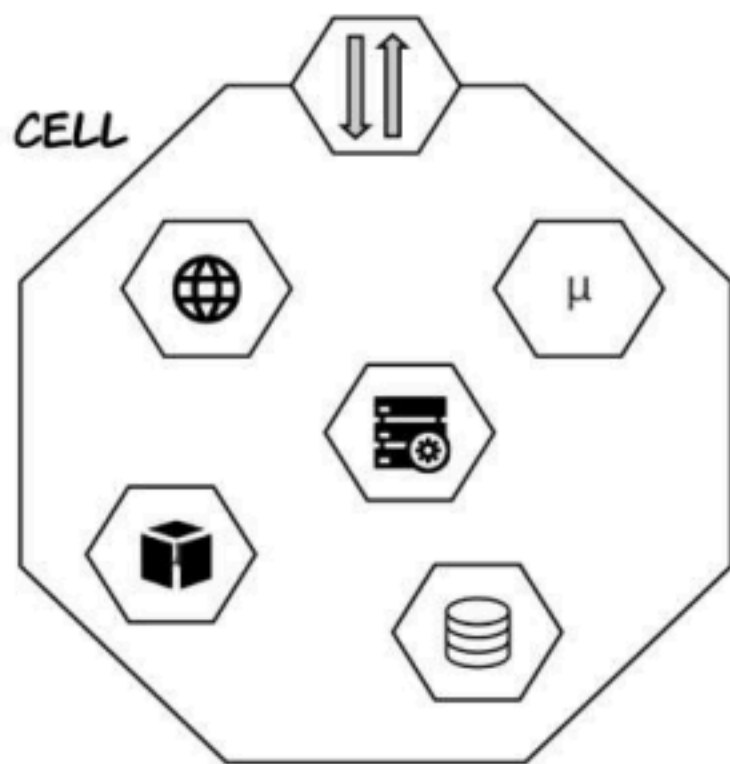
- Services are too coarse grained.
 - Unable to scale independantly.
 - Still requires significant effort to release.
- The API gateway becomes a center of excellence.
 - Causes scalability complexities.
 - Causes maintainability complexities.
- Disconnect between architects, application developers and service developers.
 - Provides an internally agile but externally waterfall experience.
- Hard to accommodate change requests
 - Most of the time ends up requiring a separate integration layer to accomodate change requests.

Cellular architecture: The Cell



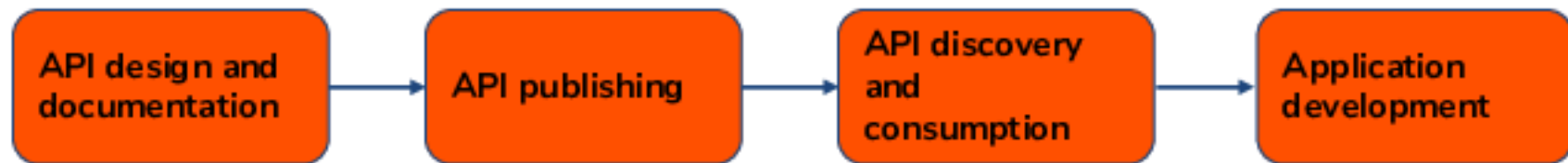
- A cell is a collection of components
- It is independently deployable, manageable, scalable and observable.
- Intra-cell communication is allowed without boundaries.
- Inter-cell communication is only allowed via the Cell gateway.
- Components within a cell are reusable and can instantiate in multiple cells.
- Capabilities of a cell must be exposed as network accessible endpoints.
- **A cell is developed and managed by a single team.**

Types of components in a cell



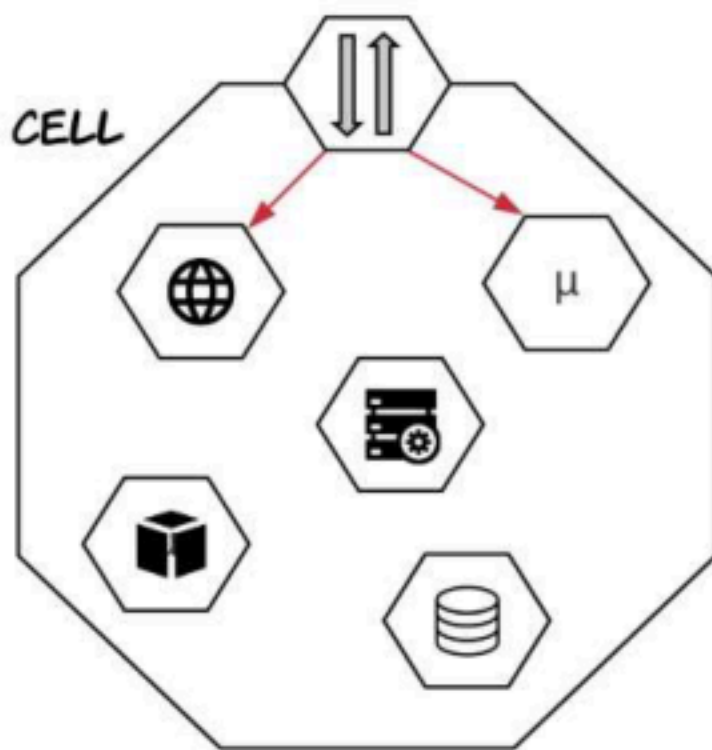
- Cell gateway
- End user applications
- Microservices
- Serverless functions
- Legacy services
- Data repositories

Typical API Management flow



What we follow today mostly is a top down approach to delivering APIs

Agile business require bottom-up delivery of APIs



- Delivering of APIs should no longer be a separate thing.
- It should be automatic and needs to be native to the service developers.
- **Microgateways facilitate bottom-up delivery of APIs as smaller groups.**

**Microgateways are the way to
decentralize APIs.**

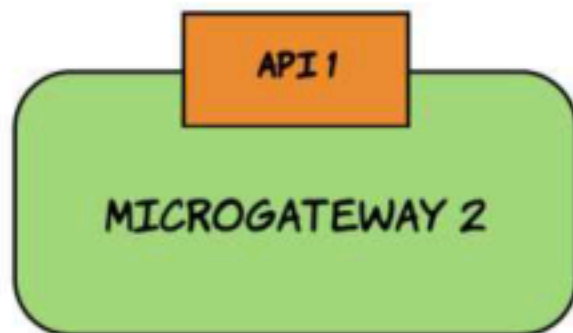
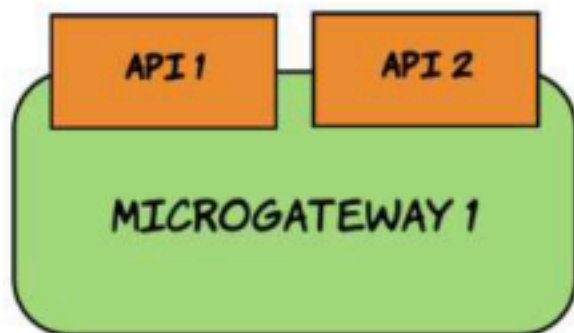
Microgateway: Generated automatically through a descriptor.



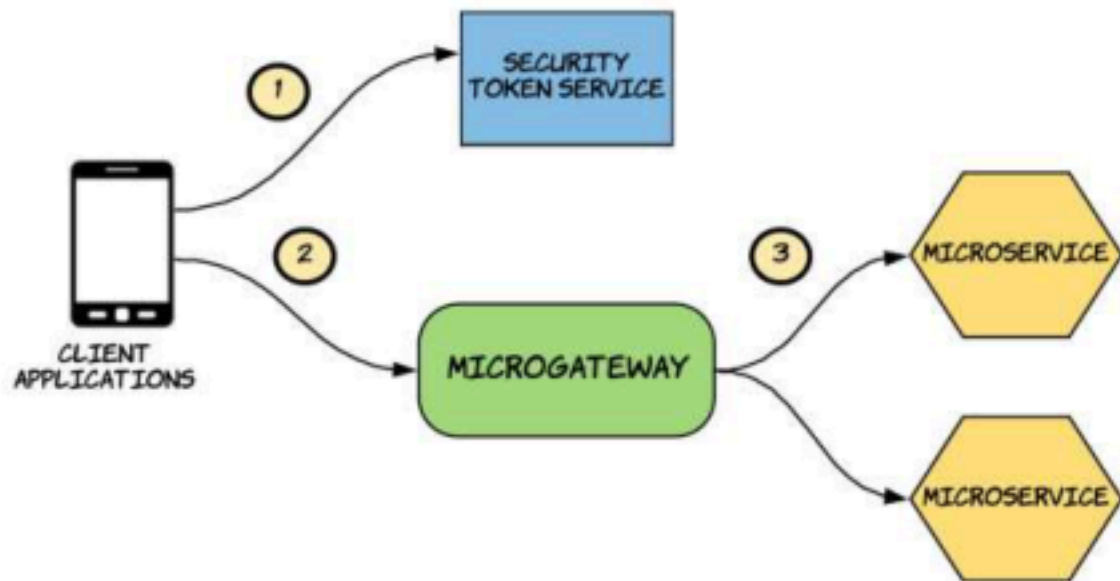
OPEN API
SPECIFICATION



Microgateway: Typically hosts one or few APIs

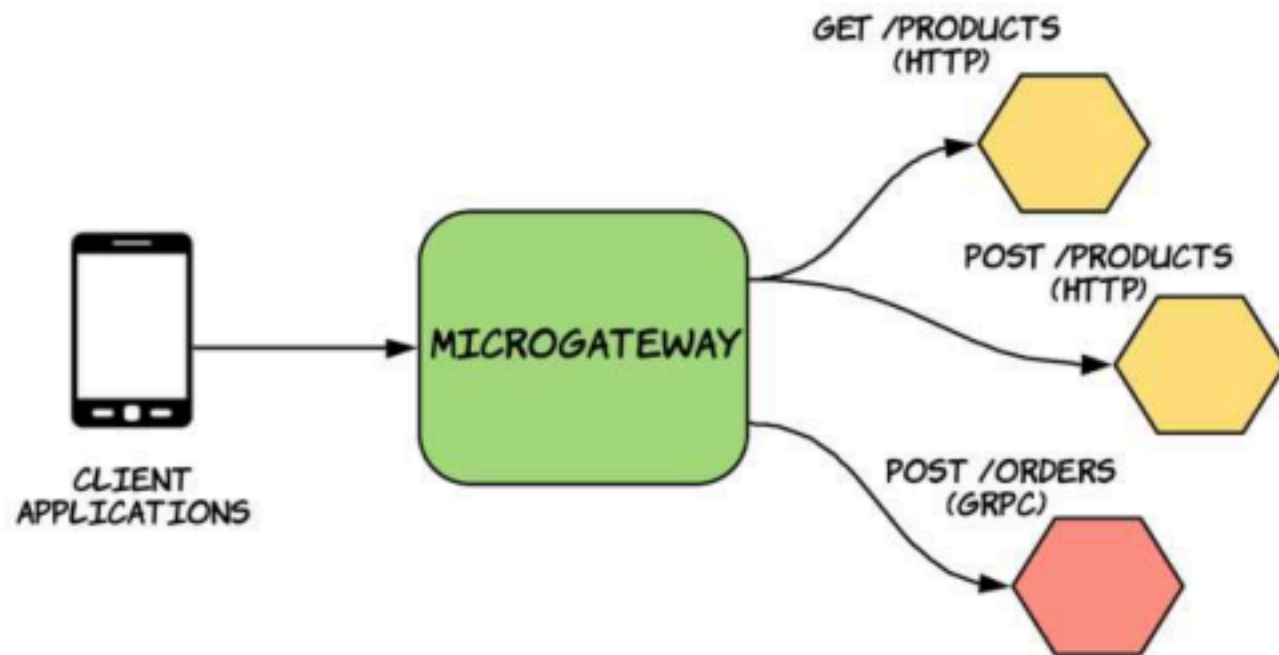


Microgateway: Independently deployable and scalable

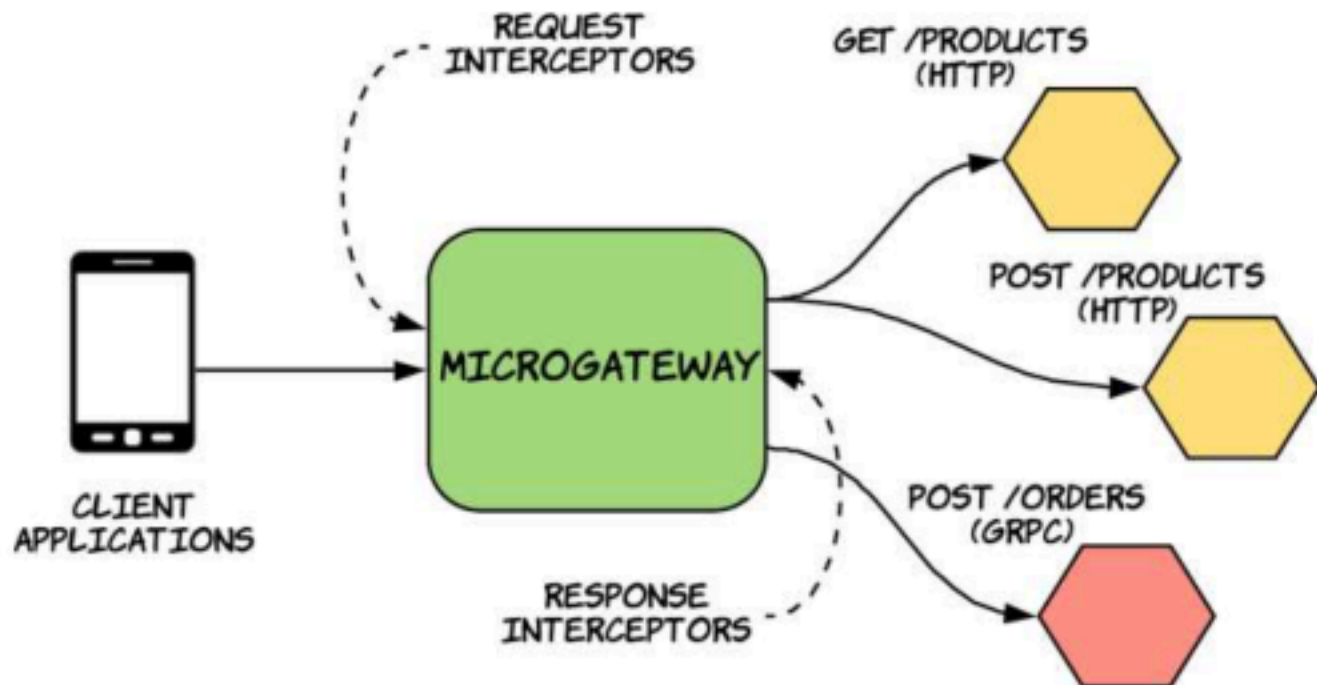


- Stateless architecture.
- No synchronous communications with external components.
- Fast boot up and low resource consumption.

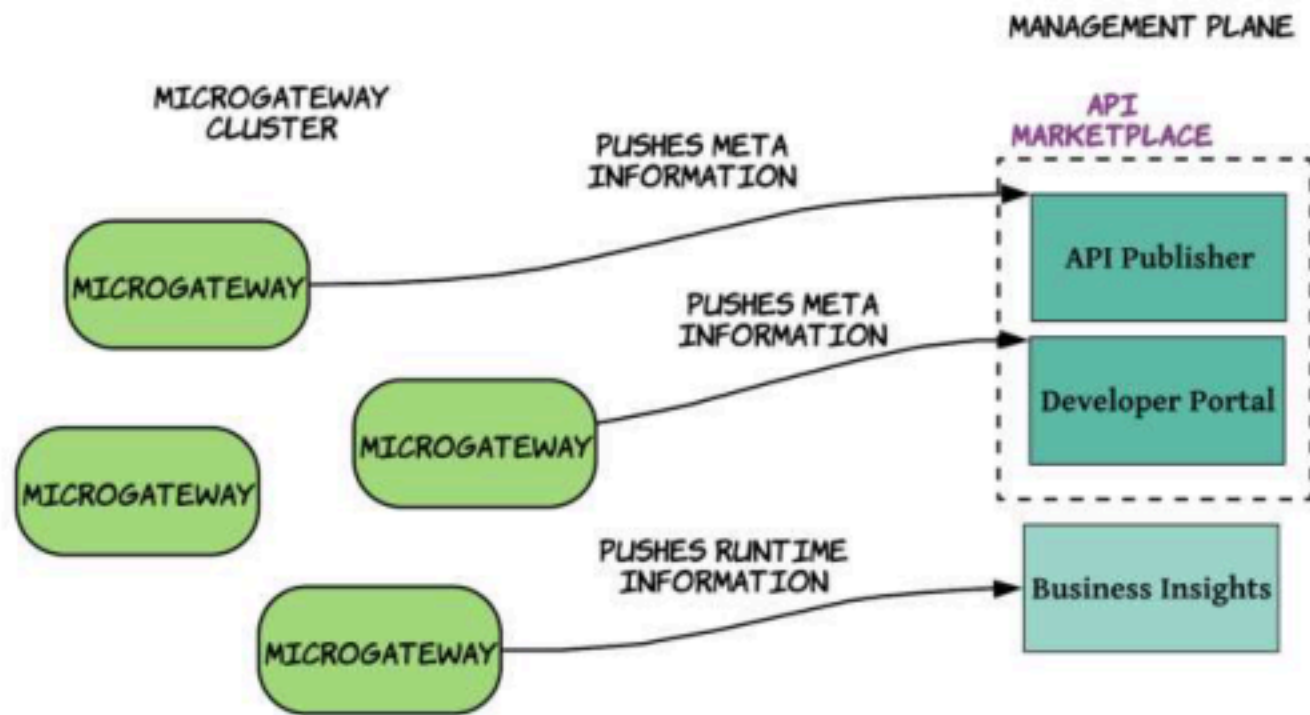
Microgateway: Supports heterogeneous backend services.



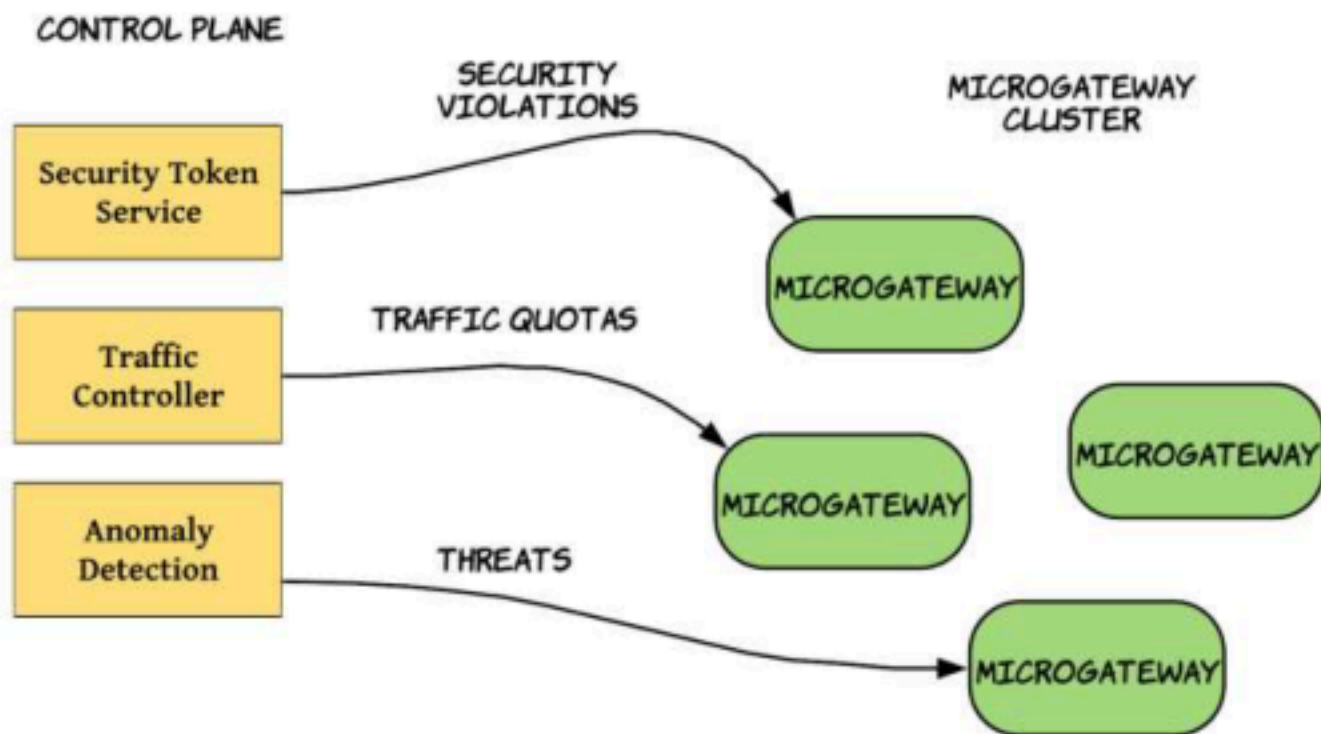
Microgateway: Intercepting requests and responses



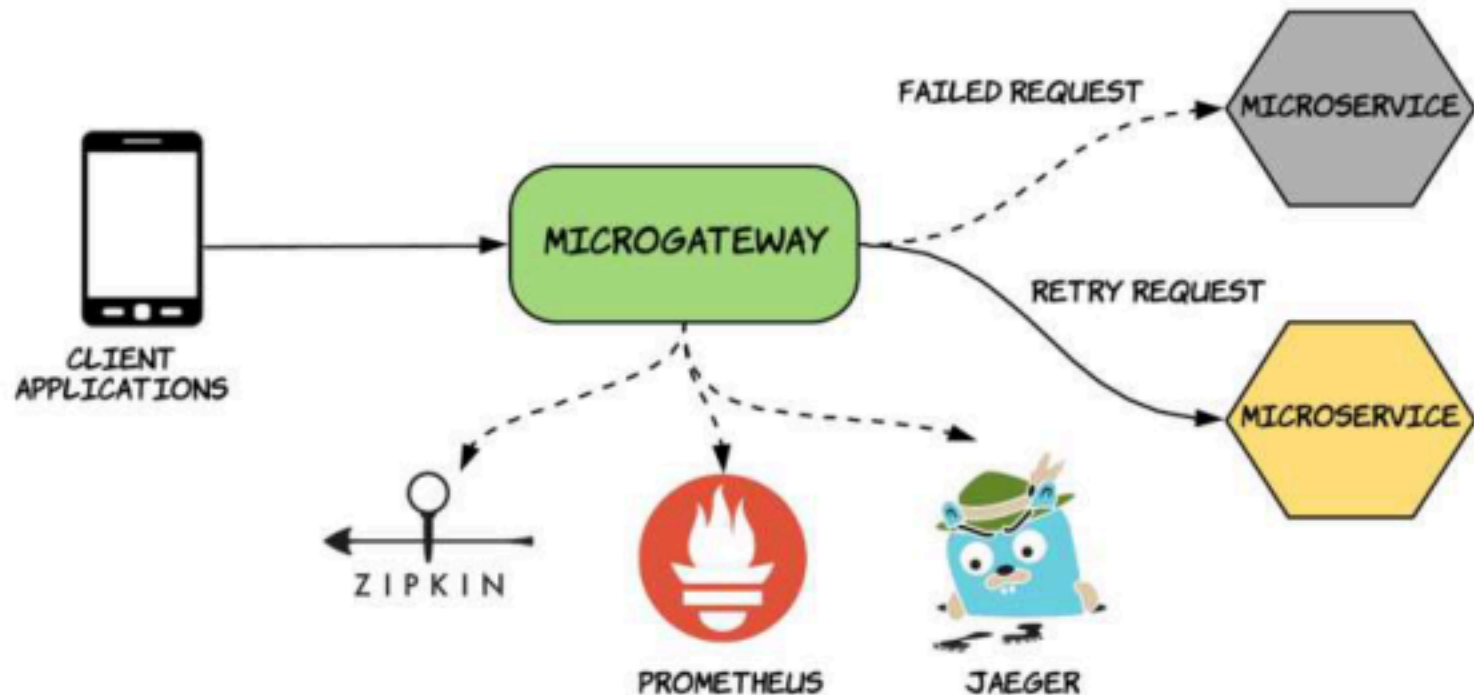
Microgateway: Observable via the Management plane.



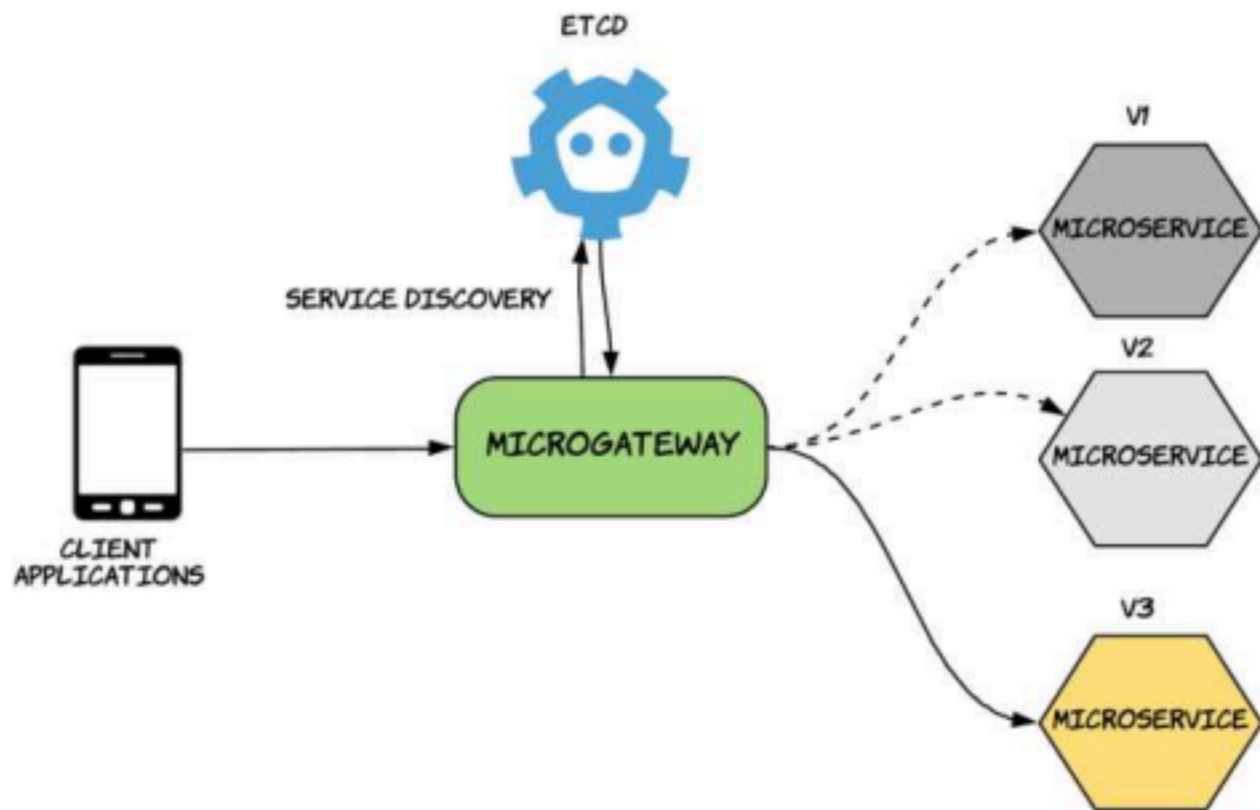
Microgateway: Controlled via the Control Plane.



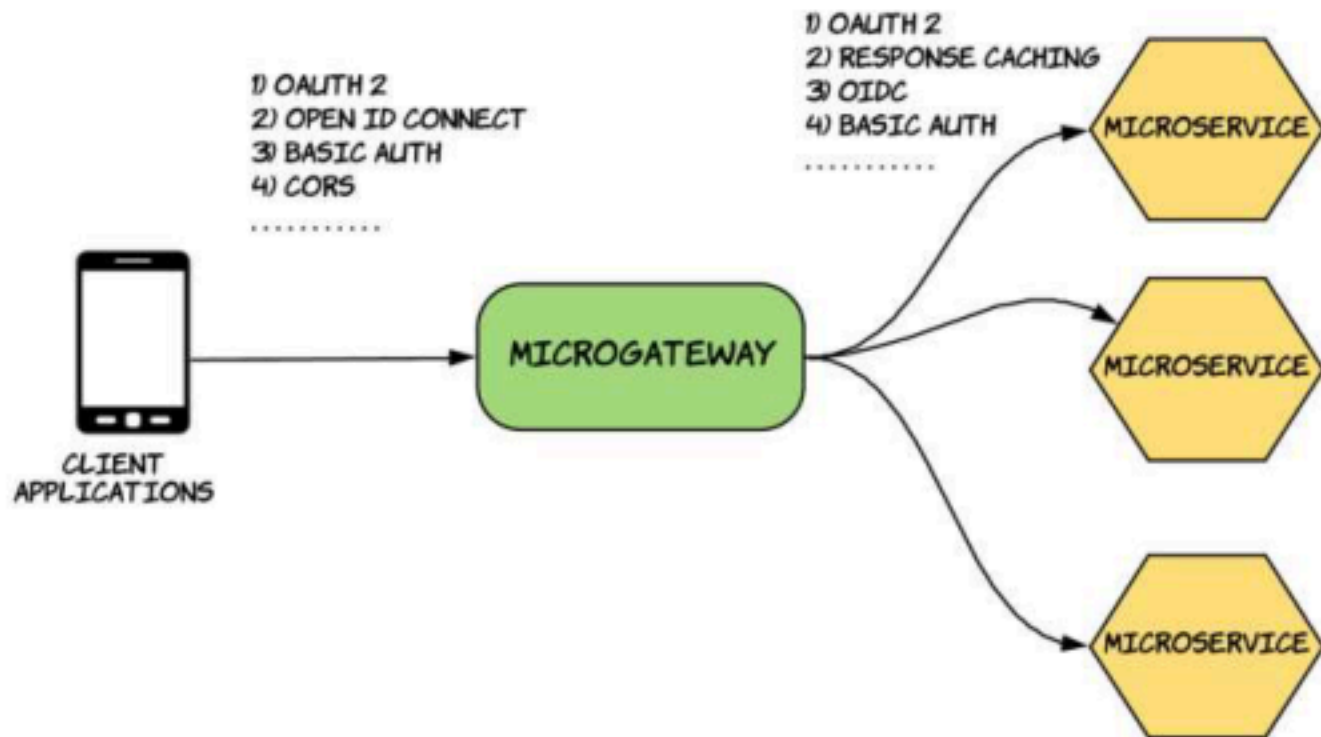
Microgateway: Resiliency and observability



Microgateway: Service discovery



Microgateway: Works on open standards to support heterogeneous applications



Summary

- Agile enterprise need systems that are scalable, composable, modular and governed.
- Cellular architecture is a reference to how we can reorganize our teams and software components to become more agile.
- Microgateways allow us to automate the deployment of APIs using a bottom up approach.
- The management plane allows us to apply standardization policies and gives us observability into the Microgateways.
- The control plane allows us to apply enforcement policies on the Microgateways.

"Action and adaptability create opportunity"

- Garrison Wynn

THANK YOU

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