F5 Volterra

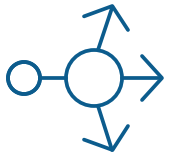
Jiří Doubek
Solutions Engineer, F5

F5 has remained focused on our original purpose: solving our customers' most important application challenges

1996 – 2004

Load Balancer

Scale websites



2005 – 2015

Application Delivery Controller

Scale and secure mission-critical applications

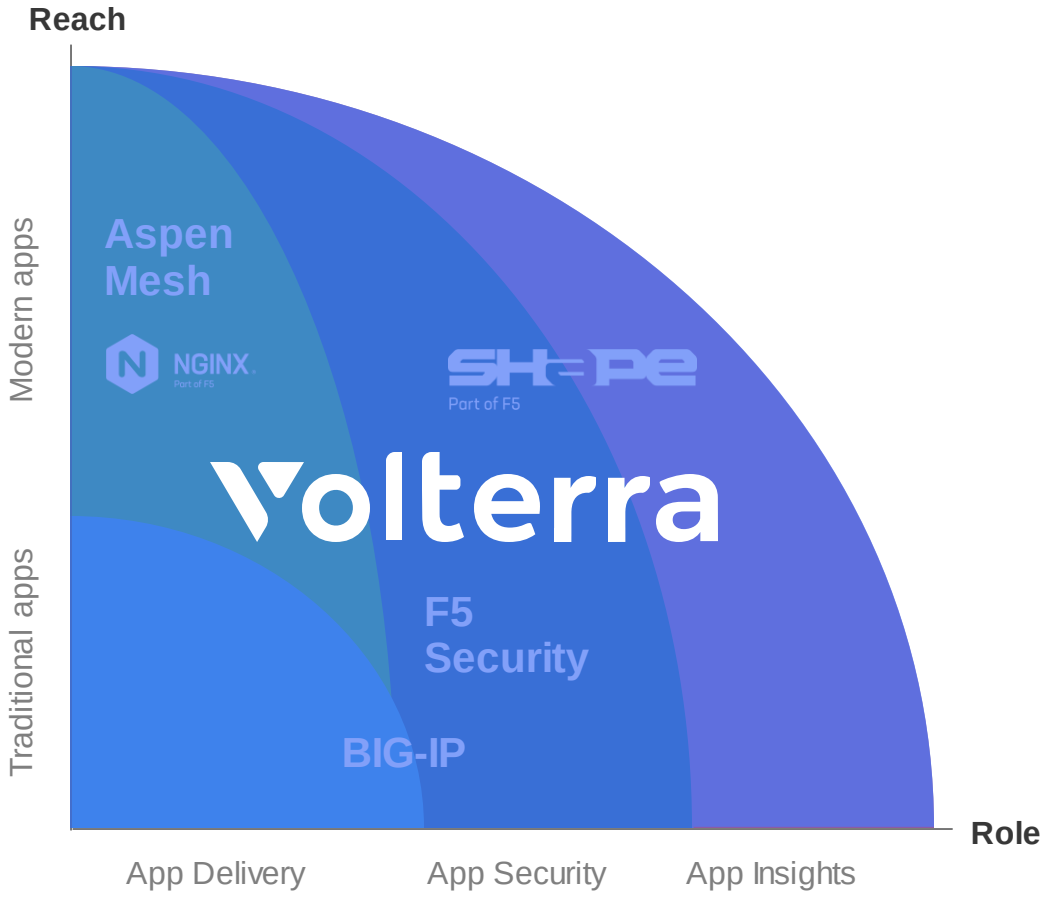
The Next Evolution

Multi-cloud Application Security & Delivery

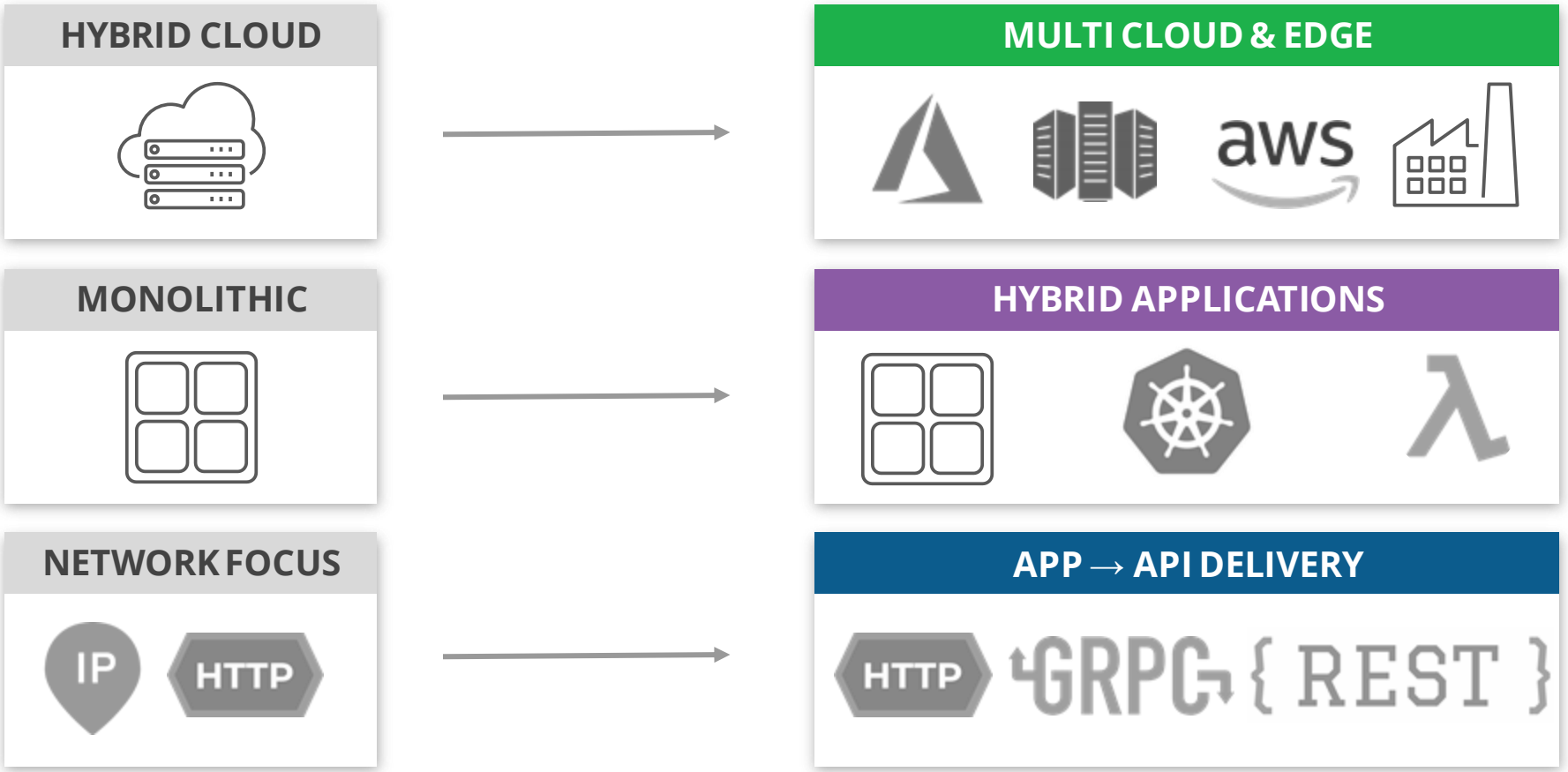
Scale, secure, and AI-optimize traditional and modern applications

We have assembled the only portfolio that can deliver on the opportunity of adaptive applications

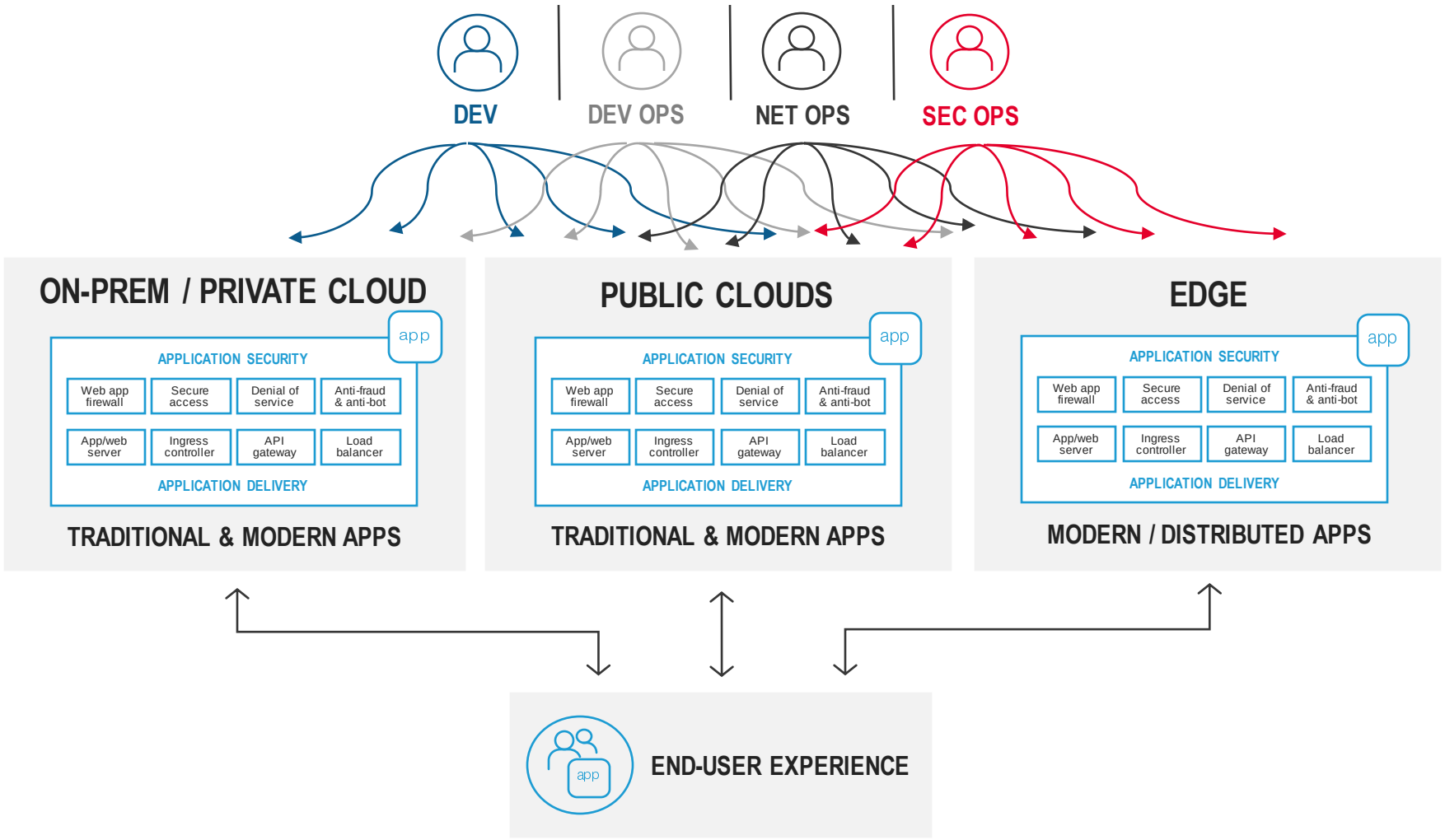
Simplify traditional app delivery for multi-cloud environments	Automates app distribution across data center, cloud & edge
Enable modern app delivery at scale	Accelerates new API-driven app experiences
Secure every app anywhere	Extends world-class security to the edge
Unlock the value of app insights	Provides edge insights, and makes the F5 platform smarter



This is compounded with **modern apps**



Operational complexity impacts apps



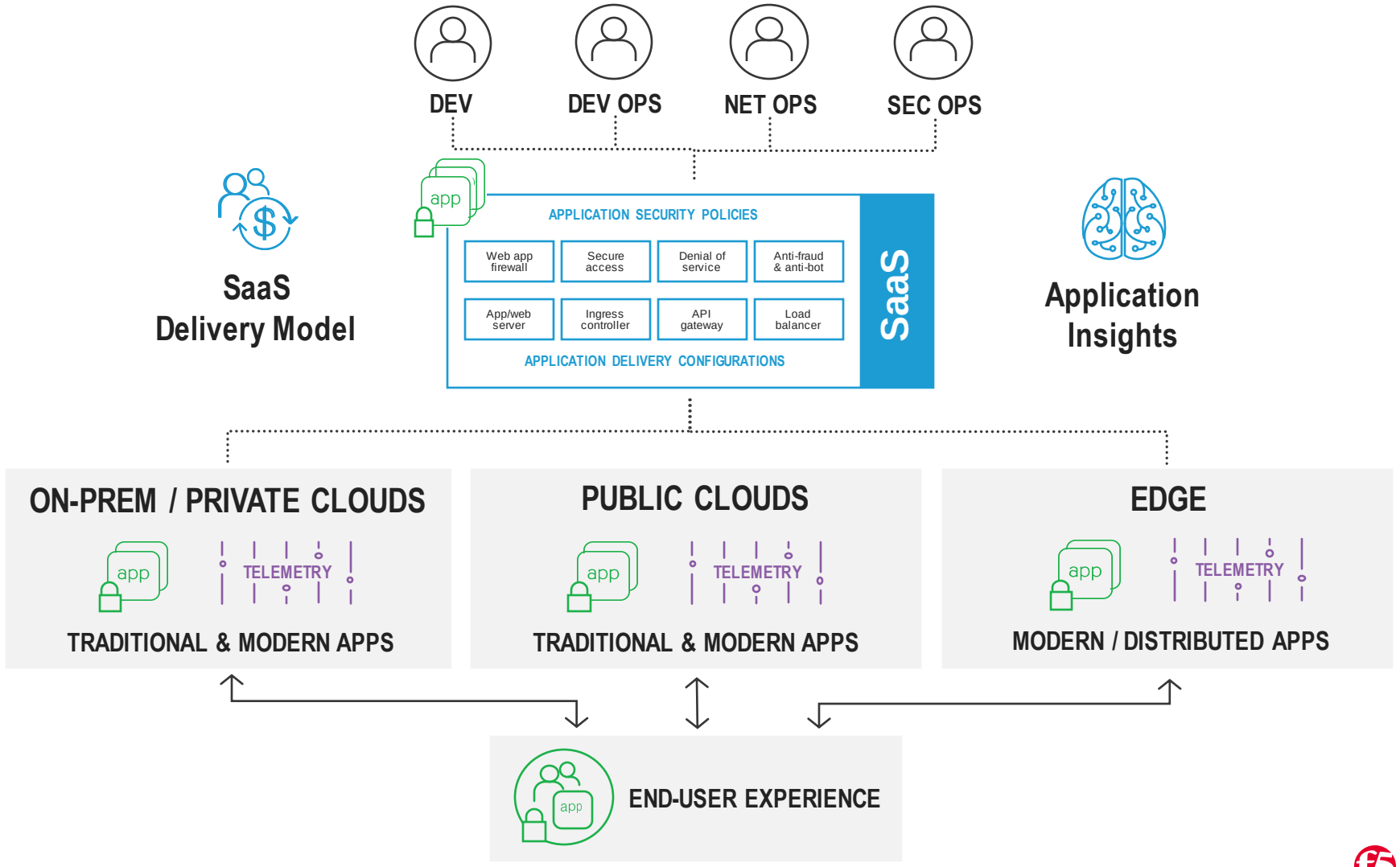
- Technical and operational debt
- Limited or inefficient scale
- Increased vulnerability
- Lack of observability

F5 + Volterra = solution for adaptive applications

Reduce Operational Complexity

Enhance End User Performance

Improve Time to Service & Value



...via a comprehensive, easy-to-use **SaaS platform**

Globally distributed platform for multi-cloud & edge

VoltMesh	VoltStack	VoltConsole
Network & Security Services	Platform Services for Infra & Apps	Operations
App & API Security (WAAP)	Application Fleet Mgmt	Multi-Tenancy
Distributed API Gateway	Blindfold Secrets Mgmt	Global Visibility (AI & ML Analytics)
LB & Service Mesh	Identity Management	Logs & Metrics
Secure Networking	Clustering & Scale-out	Custom Dashboards
Multi-Cloud Backbone	Zero Touch Provisioning	Integration APIs

Recognized for unique innovation in cloud services

Gartner COOL VENDOR 2020

IDC

Interop BEST OF SHOW AWARD 2020 Grand Prize

FROST & SULLIVAN 2020 BEST PRACTICES AWARD

The Four Pillars of the Volterra Solution

VoltMesh

Router | Firewall | ADC | DDOS | WAF | API Gateway

VoltStack

K8s Compute Platform | K8s Cluster Management | Service Discovery | Secrets Management | Identity

VoltConsole

Centralised Operations | Visibility and Analytics | Artificial Intelligence Advanced Insights

Volterra Global Network

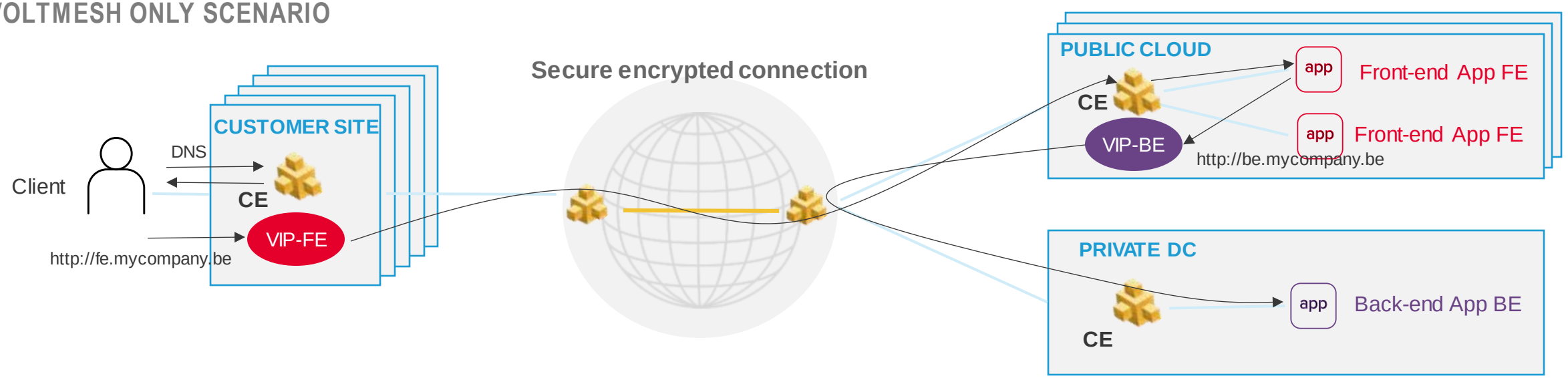
20+ Global POPs | Public Clouds Private peering | Multi-Tbps Capacity

Consolidated Service	SaaS-based Operations	Edge → Cloud
Lower TCO and complexity	Lower OpEx and faster	Common tooling

App Advertisement – Example

VoltMesh

VOLTMESH ONLY SCENARIO



CONTROL PLANE

1. Service discovery in public cloud – Front-end App FE (fe.mycompany.com)
2. Service discovery in private DC – Back-end App BE (be.mycompany.com)
3. Publish front-end app in all customer sites
4. Publish back-end app in all public cloud sites
5. Volterra control plane will set up forwarding rules across network

DATA PLANE

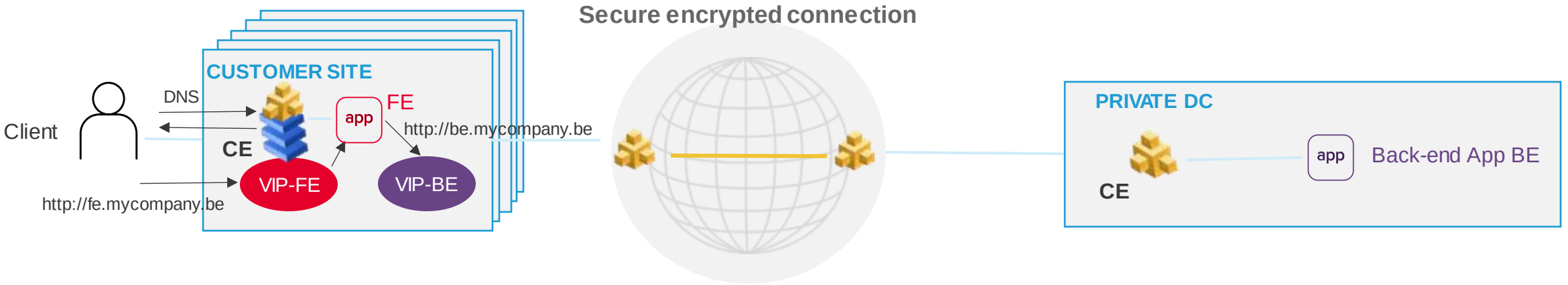
1. Client send DNS request for fe.mycompany.be
2. VoltMesh (ingress) receives DNS request and responds with local IP (VIP-FE)
3. Client sends http request to fe.mycompany.be to local IP address (VIP-FE)
4. Volterra network “load balances” this request to public cloud location(s)
5. VoltMesh in public cloud (egress) forwards request to FE app
6. FE app talks to BE app (following same rules as above)

App Distribution – Example

VoltMesh

VoltStack

ADDING VOLTSTACK IN CUSTOMER EDGE SITES HOSTING FRONT-END APPLICATION



CONTROL PLANE

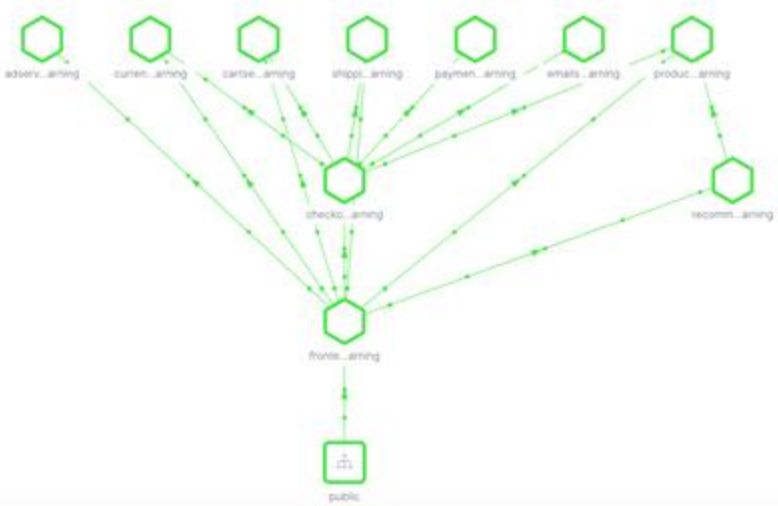
1. Service discovery in customer site – Front-end App FE (fe.mycompany.com) (internal service discovery as app is deployed on VoltStack)
2. Service discovery in private DC – Back-end App BE (be.mycompany.com)
3. Publish front-end app in all customer sites
4. Publish back-end app in all customer sites
5. Volterra control plane will set up forwarding rules across network

DATA PLANE

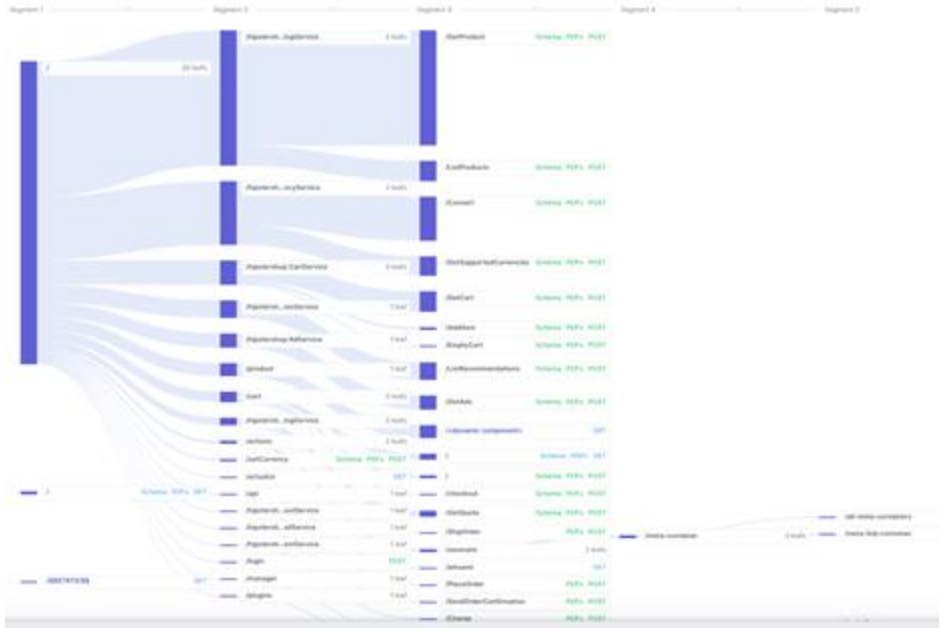
1. Client send DNS request for fe.mycompany.be
2. VoltMesh (ingress) receives DNS request and responds with local IP (VIP-FE)
3. Client sends http request to fe.mycompany.be to local IP address (VIP-FE)
4. VoltMesh "load balances" this request to local app or to other customer site
5. FE app talks to BE app (following same rules as above)

Volterra API protection – Discover APP/API communications

App-to-App Communication Graph

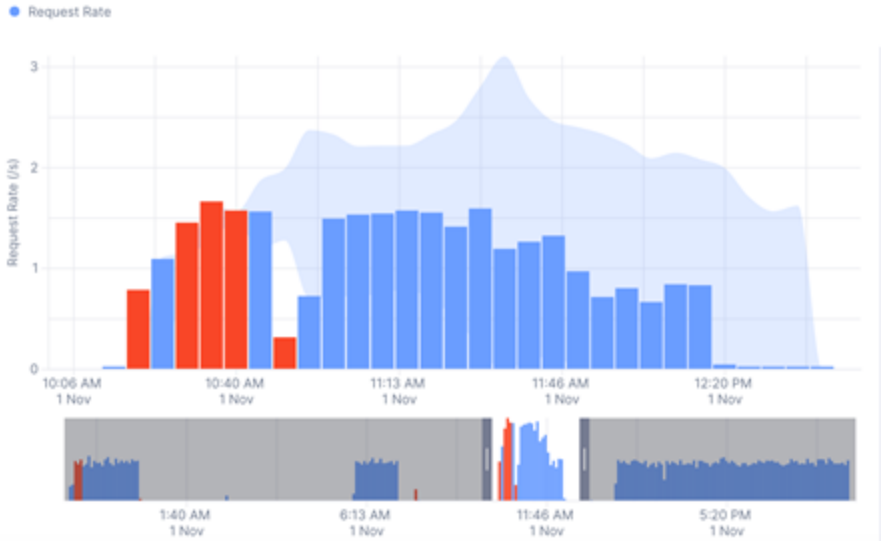


API-to-API Communication Graph

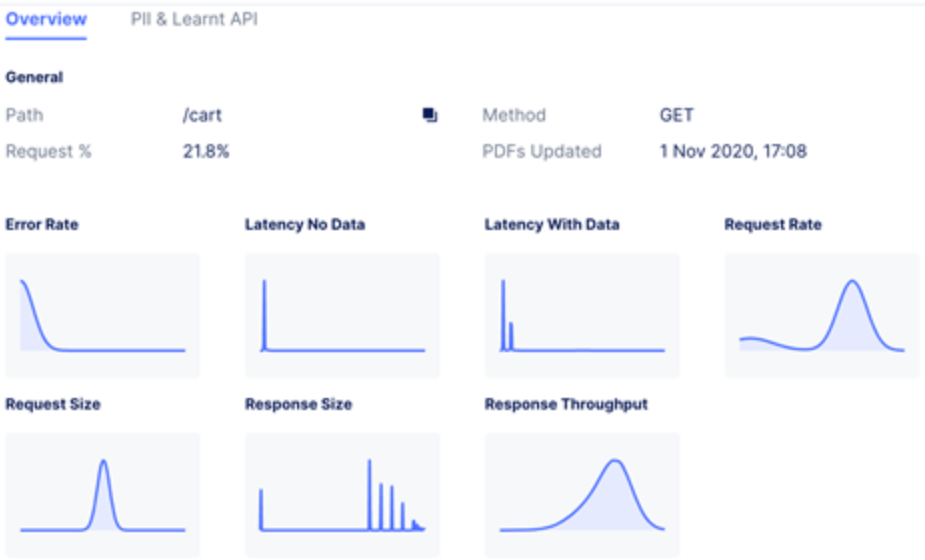


Volterra API protection – Analyze APP/API communications

Baseline normal App-to-App communication patterns



Baseline normal API-to-API requests/response patterns



Volterra API protection – Place rules to protect APP/API communications

Policy based on App-to-App and Api-to-Api graph

```
Creating policy between public-frontend-post (client) ----> frontend (server)
allow POST http method for paths:
/cart/checkout
/cart
/setCurrency
```

Create API policy to block API response based on API Data pattern learnt

Create API policy to block API request

- Konzistentní aplikační služby ve všech prostředích
- Provoz kontejnerových aplikací
- Zabezpečení komunikace
- Provozní a nákladová efektivita