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Service Mesh for Apps in Container Environments

More organizations are using container frameworks for deploying applications, scaling to meet demands, and reducing operational expenses. Challenges from disaggregated architectures and microservices are an issue, as each one needs application delivery services and automation. Most applications are isolated and require separate load balancing and layer 7 services. According to the F5 [State of Application Delivery report](#), container architectures are growing in use from 1.86 frameworks per organization in 2016 to 2.43 in 2017. This growth is occurring as application development migrates into the DevOps processes.

F5® Application Services Proxy is a service mesh solution enabling app traffic management, load balancing, programmability, and health monitoring in container environments. It provides inline programmability for application microservices using *node.js* core modules and allows custom *node.js* rule creation for flexible app services in data centers and across multi-cloud. In addition, Application Services Proxy integrates with container environment management and orchestration systems to enable self-service and automation of application delivery services. This results in a faster time to market, and reduces the mean-time-to-detection (MTTD) and mean-time-to-resolution (MTTR) of container application and environment issues. It also provides network and application stats in a data stream format to export for traffic visibility and analytics.

Key benefits

Enable service mesh for container apps

Integrate Application Services Proxy with container environments such as Mesos or Kubernetes to manage container application traffic.

Increase scalability to meet app demands

Application Services Proxy provides scalability by intelligently load balancing applications in container environments. It easily keeps apps available during development and in production.

Implement programmability for app service flexibility

Leverage programmable service mesh capabilities using *node.js* core modules and create custom *node.js* rules to expand app availability and scale service requirements, and reduce mean-time-to-resolution.

Spin up or down in seconds

Flexibly add intelligent load balancing within your container orchestration framework in seconds. Spin up or spin down application delivery services with self-service selection or automation, based on event discovery.

Gain end-to-end visibility

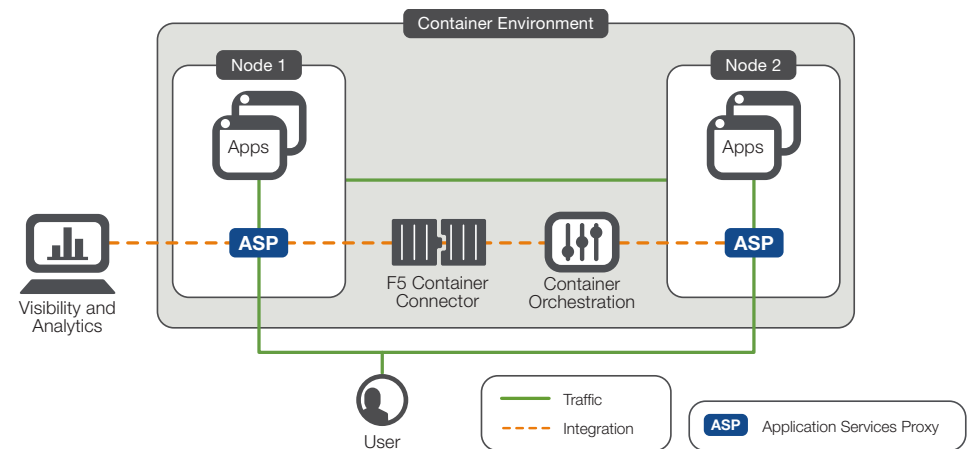
Gain end-to-end visibility and analytics through data stream export for fast mean-time-to-detection of container traffic anomalies. Application Services Proxy monitors the health of container apps with checks for a comprehensive view of health status.

Container Environments for DevOps Efficiency

Developers and system teams are turning to DevOps principles in agile environments by increasing the use of container frameworks for a faster time to market. This improves customer satisfaction and provides efficient deployment and code fixes. According to the 2016 research report, “Accelerating Velocity and Customer Value with Agile and DevOps” from Coleman Parkes and CA Technologies, combined DevOps and agile practices accelerate new business growth by 63 percent and improve operational efficiency by 41 percent. DevOps architects and app developers want more agility and automation, and need application services solutions integrated with container environments to achieve their goals.

Enable Service Mesh for Apps and Automate Availability

Application Services Proxy enables container architectures with application service mesh. It delivers application traffic management, intelligent load balancing, programmability, and health monitoring within container environments such as Kubernetes and Mesos. Now system teams and app developers can enable application delivery and inline programmability within the data plane container environment, and automate app traffic services based on container event discovery.



Application Services Proxy enables service mesh for container apps, spin up and spin down of app delivery services in seconds, and provides *node.js* programmability plus end-to-end visibility via health monitoring and analytics data export. Integration with Container Connector allows for orchestration of self-service selection and automated event discovery to create, modify, and remove app delivery services.

Application Services Proxy Service Mesh Features

- Proxies and load balances HTTP and TCP
 - Supports Round Robin load balancing method
 - Provides header manipulation, connection management, and IP forwarder
- *Node.js* core programmability support:
 - Leverage [node.js core modules](#) to extend service mesh capabilities
 - Create custom *node.js* rules to adapt to app service requirements
- Health monitoring of container apps with Active, Passive, and Orchestration environment health checks
- Delivers L4–L7 stats for data stream export
- Supported container integration environments:
 - Mesos/Mesosphere
 - Kubernetes

Increase Scalability to Meet App Demands

In order to scale your container architectures to meet application demands, Application Services Proxy increases scalability and availability by intelligently load balancing container applications. For Mesos, Application Services Proxy acts as a reverse proxy for each app task. For Kubernetes, it performs as a client-side load balancer per node, servicing all apps. Finally, Application Services Proxy provides a point in the environment for inline programmability, enabling application flexibility.

Flexibly Spin Up and Down in Seconds

With spin up or spin down of container app delivery services through self-service selection, Application Services Proxy reduces operational costs by only using compute infrastructure for exact requirements. In addition to faster deployment, you can improve the user experience by orchestrating the self-service selection of native app deployment workflows. You can also automate the process to create, modify, and remove app services based on event discovery.

Implement programmability for app service flexibility

Leverage Application Services Proxy programmable service mesh capabilities using [node.js core modules](#). These modules are a simple loading system for additional programmability from module caching to file and folder modules for app services code execution. In addition, you can create custom *node.js* rules to expand services for app availability and scale requirements. Programmability capabilities also allow for “on-the-fly” traffic manipulation decreasing mean-time-to-resolution (MTTR).

Gain End-to-End Visibility

Application Services Proxy allows you to achieve visibility of container traffic and enhances app insights through integration with analytics platforms such as Splunk and Prometheus. It delivers L4–7 stats in a 3rd party-compatible format for timely data stream export, mean-time-to-detection (MTTD), and analytical reporting. Use the Splunk templates for end-to-end application traffic aggregation in analytics and for fast resolution of container traffic anomalies.

Monitor the Health of Your Container Apps

With Active, Passive, and Orchestration environment health checks, Application Services Proxy provides network health view of a service endpoint in addition to application health view provided by containers issuing node local liveness probes.

In addition, it detects if a service endpoint is healthy to receive client traffic and removes it from the load-balancing pool if found unhealthy. ASP observes client traffic opportunistically via passive health monitoring checks and combines health information from various health check types—passive, active probing, orchestration environment—giving a more comprehensive health status of an endpoint. Monitoring capabilities reduce the mean-time-to-detection (MTTD) of app health issues for fast resolution.

Licensing

Application Services Proxy is easy to download at no charge from [Docker Store](#).

F5 Global Services

F5 Global Services offers world-class support, training, and consulting to help you get the most from your F5 investment. Whether it's providing fast answers to questions, training internal teams, or handling entire implementations from design to deployment, F5 Global Services can help ensure your applications are always secure, fast, and reliable. For more information about F5 Global Services, contact consulting@f5.com or visit f5.com/support.

DevCentral

The F5 DevCentral™ user community of more than 300,000 members is your source for the best technical documentation, discussion forums, blogs, media, and more related to app services.

More Information

To learn more about F5 Application Services Proxy, use the search function on f5.com to find these and other resources.

Web pages

[Container Integrations](#)

[Application Services Proxy](#)

Datasheet

[Container Connector](#)

Articles

[How Containers Scale – Service Mesh versus Traditional Architecture](#)

[F5 Survey Finds DevOps and NetOps Agree on Importance of Automation and Frequency of Deployments](#)

[Speed, Scale, and Security: F5 Now Connecting Containers in Kubernetes](#)

[Containers Are Tired of Being Typecast](#)

[DevOps for NetOps Is About Scale](#)

[App Services as Code](#)

[New Insider Threat: Automation Frameworks](#)

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