CISCO Kinetic

Accelerate critical decisions and optimize network use with distributed computing

Add computing power anywhere in your distributed network with the Cisco Kinetic **Edge & Fog Processing Module (EFM)**. By pushing select data processes to the edge and fog, you can make fast decisions close to the point of action, and reduce data before sending to higher levels in your network. This will minimize latency and maximize the efficiency of your network investment.
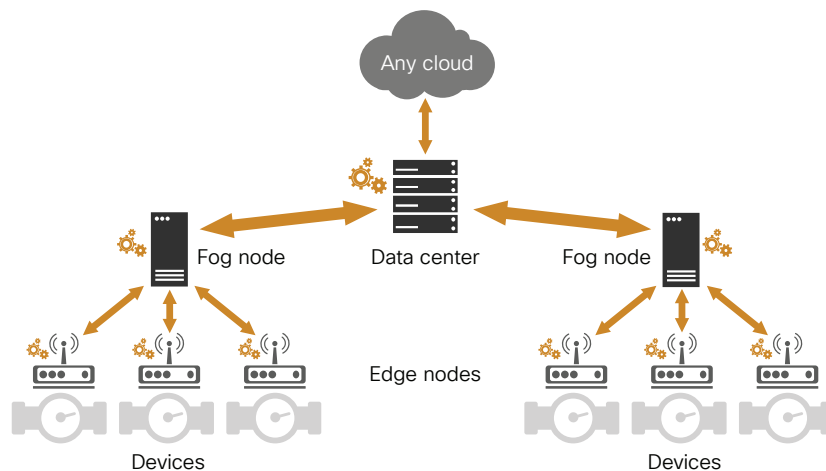
Apply complex rules to data in motion to reduce, compress, normalize, and transmit data in optimal ways

Any cloud

Fog node   Data center   Fog node

Edge nodes

Devices   Devices

Unlock the value of your IoT data with Cisco Kinetic

The Cisco Kinetic platform is an IoT data fabric, designed to extract data from your connected devices, compute anywhere in a distributed network, and move data to the various applications where it can be used to drive meaningful business outcomes.

The three key modules of the Cisco Kinetic platform

Gateway Management Module (GMM) – to provision, monitor, and manage gateways at scale

Edge & Fog Processing Module (EFM) – to enable computing on distributed nodes of the network

Data Control Module (DCM) – to enforce policy and get the right data to the right apps at the right time

Optimize IoT data to drive value

The Edge & Fog Processing Module (EFM) performs complex rules on data in motion to intelligently reduce, compress, normalize, and transmit data in optimal ways. It enables a new class of IoT applications for advanced monitoring and diagnostics that can improve your overall equipment efficiency. EFM is open and modular, able to incorporate micro-services from any third-party vendor.

Cisco Kinetic EFM enables you to:

- **Extract data from diverse, distributed devices** – Connect a broad range of devices and sensors across your organization and get usable data from them.

- **Compute data in a distributed IoT environment** – Apply rules and logic on data in motion or data at rest. Perform micro-processing where needed, from the edge to the cloud.

- **Move data to diverse, distributed applications** – Get the right data to the right applications where you can use it to create business value.

You can use EFM in both connected environments and industrial environments with no internet connectivity.

Streamline operations across all your IoT devices

EFM uses a variety of IoT protocol adapters to extract device data from disparate sources. EFM then converts the data into a common format so it can be used by your applications.

Engage the right processing at the right level

Get better insights through real-time intelligent processing and distribution of data. EFM processes data where it's actively created. It then distributes data using a differentiated approach that filters, aggregates, and compresses data at the edge or in the fog, or in the cloud via the Cisco Kinetic Data Control Module (DCM).

Improve operations and decision making with real-time insights from the right sources at the right time

Get the right data to the right application

Create policy-driven data flows quickly and easily with the dataflow editor. You can aggregate multiple data points from various locations to gain actionable insight into trends and patterns, and send the precise data you want to any mix of applications.

Manage IoT operations at scale

Gain visibility and control for all your IoT applications and operations. In the EFM system administrator dashboard, you can provision, configure and manage IoT applications at scale at the edge, in the fog, and/or in the data center. And, from the system monitor dashboard, you can view the health of your entire system in real time.

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Gain visibility and control of your IoT data

The Cisco Kinetic Edge & Fog Processing Module combines multiple components to create a highly scalable, modular and secure system to deploy and manage enterprise IoT solutions.

System Administrator to configure and manage EFM components

Dataflow Editor to simplify data routing and transfer

System Monitor to track a real-time view of system health

Real-time data visualization (optional)

Feature	Details
System Administrator	• Provision and deploy EFM components. • Configure and manage lifecycles of EFM components.
Dataflow Editor	• Enable visual programming with easy drag-and-drop interface. • Customize dataflows with a graphical layout. • Quickly create and debug dataflows with real-time values.
System Monitor	• Obtain health information and a real-time view of the nodes and microservices.
Message Broker	• Ensure reliable and flexible data delivery between clients. • Deliver data at the edge, fog, and data center/cloud - with a very small footprint. • Exchange publish-subscribe and request-reply messages. • Guarantee Quality of Service (QoS) for data delivery.
Links	• Enable communication between edge devices and message brokers. • Communicate with IoT devices using their native protocol. • Provide connectivity to the ParStream IoT historian. • Support multiple languages such as Java, JavaScript, Python, Ruby, C, C++, Dart, and Scala.
IoT historian database	• Continuously import time series data with a high ingestion rate. • Ensure subsecond query response times on terabytes of data. • Get immediate and continuous analysis of real-time data as it's being loaded. • Rely on local real-time analytics and storage close to the source.
Real-time data visualization (optional)	• Stay informed with real-time, data-driven applications and dashboards. • Accelerate workflow with drag-and-drop data binding and rapid application development. • Access all data sources (IoT devices, databases, etc.) in a single, unified workspace. • Gain out-of-the-box support for comprehensive widgets for visualization. • Leverage visual programming technology without have to code or write script. • Access low-bandwidth end-user content viewable in web browser and mobile-responsive.

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System requirements

Your system requirements depend on the characteristics of your data (volume, velocity, and variety) and type of processing you need. For example, at the edge where compute resources are limited, you'll want to be able to convert, filter, and aggregate data.

Processing type	Minimum system requirements	
Edge (low compute)	Disk space	N/A
	Hardware	Single core
	Memory	256 MB
	Software	Red Hat 7.2, CentOS 7.2, Ubuntu 14.04 LTS, Windows 10, IOX
Edge/fog/data center (high compute)	Disk space	100 GB
	Hardware	Six core, 2.4 GHz
	Memory	2 GB/core
	Software	Red Hat 7.2, CentOS 7.2, Ubuntu 14.04 LTS, Windows 10

Recommended Cisco hardware

Cisco Kinetic EFM supports running on top of a number of Cisco networking devices and servers, creating a distributed computing fabric. Additionally, EFM supports running on third-party IoT gateways and servers. Here are the Cisco specific hardware recommendations based on the network location.

Network location	Cisco hardware
Edge (low compute)	• Industrial edge routers: IR 809/829 • Industrial Ethernet switches: IE 4000 • Integrated services router: ISR 4000 (with embedded Cisco UCS®)
Edge/fog/data center (high compute)	Cisco UCS C-Series rack servers: • Cisco UCS C220 • Cisco UCS C240

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How to order Cisco Kinetic EFM

Licensing

The Cisco Kinetic Edge & Fog Processing Module (EFM) is licensed on a per-node and per-device basis. The quantity you order should reflect the number of nodes EFM will execute and devices with which EFM communicates. You can purchase a subscription software license for a 12, 36, or 60 month period. Software upgrades on all maintenance releases and patches, minor update releases, and major upgrade releases are included in the base subscription price.

For full ordering details, please see the Ordering Guide for this product.

Services & Support

Your EFM software subscription entitles you to basic technical support services covering problem resolution, customer success and adoption, and designated support management. With the basic plan, you'll have 24x7 support for break/fix issues by phone, web, or email, as well as access to the knowledge base and tutorials. No additional products or fees are required to receive these services with the Cisco Kinetic EFM software subscription.

For more information, refer to the service description about Cisco Software Subscription Support Services.

Learn more

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