



The bridge to possible

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Cisco Ultra Services Proxy (CUSP)

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Value statement

Cisco® Ultra Services Proxy is a network optimization offering that enables service providers to:

- Maximize TCP transport efficiency
- Enhance subscriber experience by optimizing bandwidth utilization
- Obtains key session metrics, including RTT, average throughput, and retransmissions

Product overview

Cisco Ultra Services Proxy (CUSP) is a TCP accelerator leveraging an auto-tuning algorithm to improve traditional TCP congestion control. CUSP enables the network to rapidly adapt to changing traffic demands without impacting the user experience. As a result, the operator will be able to increase the number of supported subscribers or deliver increased bandwidth to current users. CUSP also improves browser page loading times, which is important when using third-party speed tests like Ookla and P3.

CUSP detects potential network congestion and alleviates the problem before it affects subscribers by maximizing the “Bandwidth Delay Product (BDP).” The CUSP algorithm is different from traditional TCP congestion control phases, which use a suboptimal approach that can be slow to react to changing conditions. Instead, CUSP uses a two-phase method that results in the maximum throughput that can be sustained with the smallest possible latency. This includes an initial phase that uses the derived BDP information to determine the optimal starting Congestion Window (CWND) value and a dynamic phase where variations to the optimal transfer rate are determined through probing algorithms. The algorithm periodically probes the links to maintain maximum sustainable bandwidth.

Features and benefits

Table 1. Cisco Ultra Services Proxy: Features and benefits

Feature	Benefit
Does not rely only on packet loss or delay as congestion indicators	Agile algorithm delivers improved overall throughput and user experience
Transparent without TCP handshake termination	<ul style="list-style-type: none">• Preserves TCP process for endpoints while accelerating the end-to-end TCP transport process• Maintains “Three-Way Handshake” between the endpoints and acknowledges (ACK) ACKs the data segments on behalf of them• Keeps sequence numbers and allows for TCP options to be negotiated between the endpoints as needed
No need for static optimization profiles	CUSP dynamically adapts to changing network conditions and uses an auto-tuning algorithm
Choice of deployment	CUSP can be deployed both on COTS x86 hardware as a Virtual Network Function (VNF) or on Cisco’s ASR5500/DPC2 platform
Auto-tuning through probing	The CUSP product tracks and categorizes congestion scenarios based on traffic statistics in real time

Prominent feature

The CUSP auto-tuning algorithm understands traffic flow variables between network elements so it can react quickly and accurately to real congestion potential and will not slow traffic due to normal variations in data flows. This is a key differentiator from traditional TCP optimization that can be “tricked” into unnecessarily slowing down traffic because they rely on a model that reacts to loss and/or delay TCP congestion control algorithms.

CUSP congestion detection and control is streamlined from the traditional “handshake,” while preserving the “handshake” and “ACKs” for the network endpoints. The CUSP two-phase methodology detects and alleviates potential congestion before it affects the subscriber and end device. This results in the maximum throughput that can be sustained with the smallest possible latency.

Platform Support

Table 2. CUSP Platform Support

Product Family	Platforms Supported	IOS Images (Feature Sets) Supported
CUSP	COTS x86 servers and Cisco Ultra Packet Core	StarOS
CUSP	Cisco ASR5500	StarOS

Licensing

Cisco understands that in today’s competitive environment, different go-to-market models may be needed. As such, we offer flexible consumption and pricing models. License models include:

- Subscription
- Enterprise License Agreement (ELA)

Ordering information

Contact your Cisco account representative today for pricing and ordering information.

Warranty information

Cisco Ultra Services Proxy (CUSP) has the standard Cisco software warranty.

Cisco and Partner Services

Services from Cisco and our partners help you get the most value from the Cisco Ultra Services Proxy solution, both quickly and cost-effectively. In addition, we can help you:

- Solidify your vision
- Create a strategy
- Develop a roadmap
- Build a scalable design
- Strengthen your team by sharing what we know

Cisco Services (CX) delivers award-winning services with a history of market-changing innovation. We provide software-enabled smart services built through more than 28 years of industry leadership. In addition, Cisco Services is globally recognized for expertise in engineering IP next-generation network solutions and managing large system and network integration projects.

Learn more at <https://www.cisco.com/go/spservices>.

Cisco Capital

Flexible payment solutions to help you achieve your objectives

Cisco Capital makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments. [Learn more](#).

Call to action

With Cisco network optimization tools like CUSP and Cisco Ultra Traffic Optimization (CUTO) you can delight your customers while reducing costs. Learn more about the simple steps to improve your business today, visit <https://www.cisco.com/c/en/us/solutions/service-provider/5g-network-architecture.html>.

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