The bridge to possible

Cisco Ultra Traffic Optimization (CUTO)

Contents

Cisco® CUTO is a machine-learning optimization solution that improves customer experience while reducing costs and congestion. It offers an attractive alternative to deploying costly spectrum and additional cellular radio gear.

Product overview

CUTO is a Radio Access Network (RAN) optimization technology designed to increase cell site capacity by increasing mobile subscriber connection speeds in congested cells. It is a machine-learning software solution integrating with Cisco Mobile Packet Core (P-GW), including Deep Packet Inspection (DPI) functions such as Application Detection and Control.

- CUTO has a machine-learning algorithm that optimizes all traffic to use existing RAN capacity more efficiently. This software technology delivers the same results as adding more cells and spectrum to the RAN. However, CUTO delivers this instantly without the excessive cost, time, and complexity of adding new cells. Although new cells will always be required because of increasing traffic demands, Cisco Ultra Traffic Optimization decreases the number you need by using the existing capacity more efficiently.

- During periods of network congestion, large traffic flows (like video) saturate radio resources and the eNodeB scheduler, affecting key metrics such as user throughput and scheduler latency. CUTO employs machine learning to detect these large traffic flows and optimize the delivery of that traffic, mitigating network congestion without degrading user experience. So, by employing software intelligence at the network core, CUTO mitigates the overwhelming impact video has on the RAN.

Cisco Ultra Traffic Optimization resolves this digital communications issue more effectively by using a machine-learning software approach rather than through legacy hardware-centric solutions.

Features and benefits

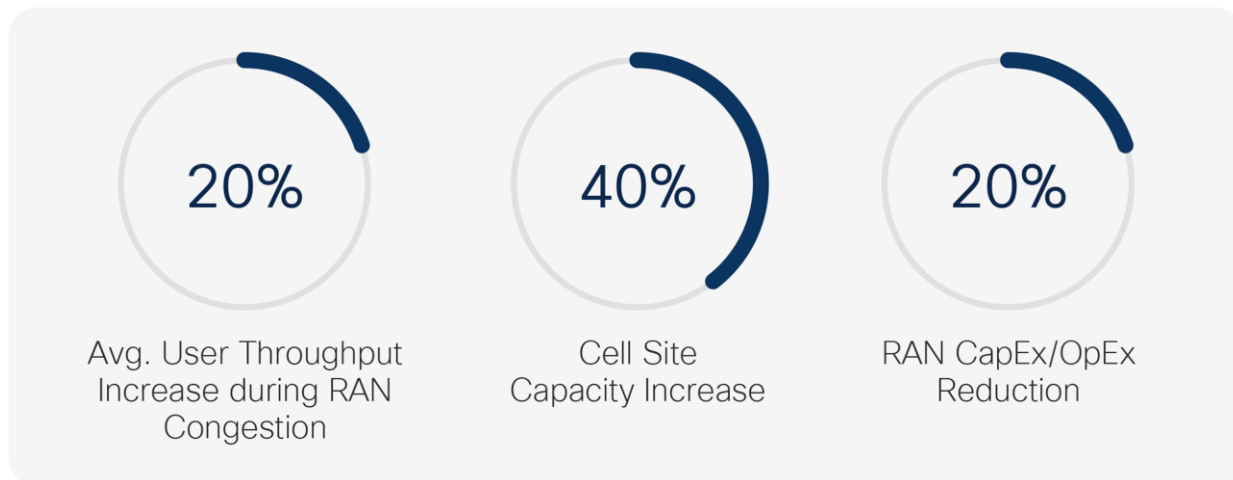| Feature	Benefit
RAN saving that adds up over years	Increases capacity through existing cells delivering immediate RAN capacity gain, which in turns saves millions of dollars of RAN expenditure for MNOs – fast ROI.
Time to market	Adding spectrum overlay in a dense urban area takes several months versus enabling CUTO in approximately 2 hours.
Smarter way of managing congestion	Uses a machine-learning algorithm to better manage the flow of the video (and other large flows) into the cell packet-by-packet and also removes contention at the scheduler, frees up capacity, and increases the performance of the cell.
Vendor agnostic	Works well with all major radio equipment providers for operators.
Compatible and aware	This product works across various technologies, including 3G, 4G, and 5G. It can optimize encrypted and nonencrypted traffic equally well. CUTO can be deployed along with traditional TCP optimization, and its fully application and protocol aware.
Future proof	CUTO SW can be used on ASR5500- or x86-based platforms and consumes negligible CPU cycles. It works across TCP, UDP, and QUIC protocol.

Prominent feature

Software densification is smarter way to add additional RAN capacity

Cisco Ultra Traffic Optimization is a more affordable alternative to purchasing new RAN equipment and spectrum. It offers immediate capacity relief without the high complexity, extended lead times, and execution risk associated with traditional RAN hardware densification. Through its advanced optimization, the solution can help deliver a better return from RAN and mobile network investments.

This Cisco solution helps to increase cell site capacity by 40%, with average user throughput increased by 20% under RAN congestion – with this it reduces the RAN expenditure by 20%.

A capital efficiency multiplies year-over-year across the entire network of current and new deployments, enhancing your cost effectiveness for years.

20% — Avg. User Throughput Increase during RAN Congestion

40% — Cell Site Capacity Increase

20% — RAN CapEx/OpEx Reduction

Time-to-market advantage

Cisco Ultra Traffic Optimization is vendor and technology agnostic. It provides immediate gain across all RAN vendors, including Ericsson, Huawei, and Nokia, and across technology generations (3G, 4G, 5G NSA, and 5G SA). Cisco Ultra Traffic Optimization can be operational in approximately 2 hours versus the 18 to 24 months it takes to add spectrum and new cellular gear. The solution can be enabled in Cisco Packet Core with less than a 3% CPU impact or operated as a standalone solution. The benefits of time and cost make CUTO a smart choice.
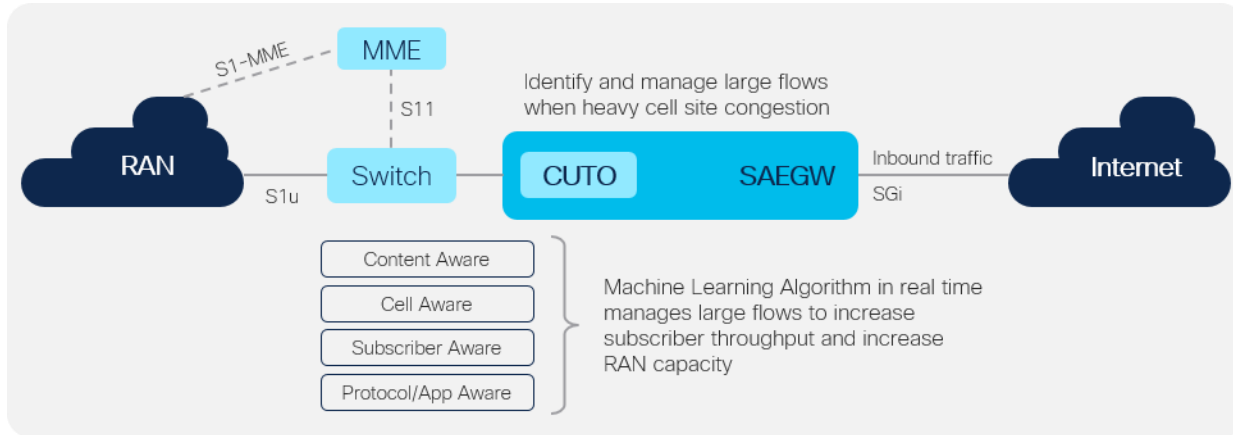

Figure 1.
Cisco Ultra Traffic Optimization in Cisco packet core at MNOs

Flexible deployment options

Cisco Ultra Traffic Optimization can be deployed in an embedded way with the Cisco SAEGW/User Plane, or it can also be placed outside the SAEGW/User Plane on a standalone server. In a standalone implementation, it has options to be deployed on the S1-U or SGi side of the packet gateway.
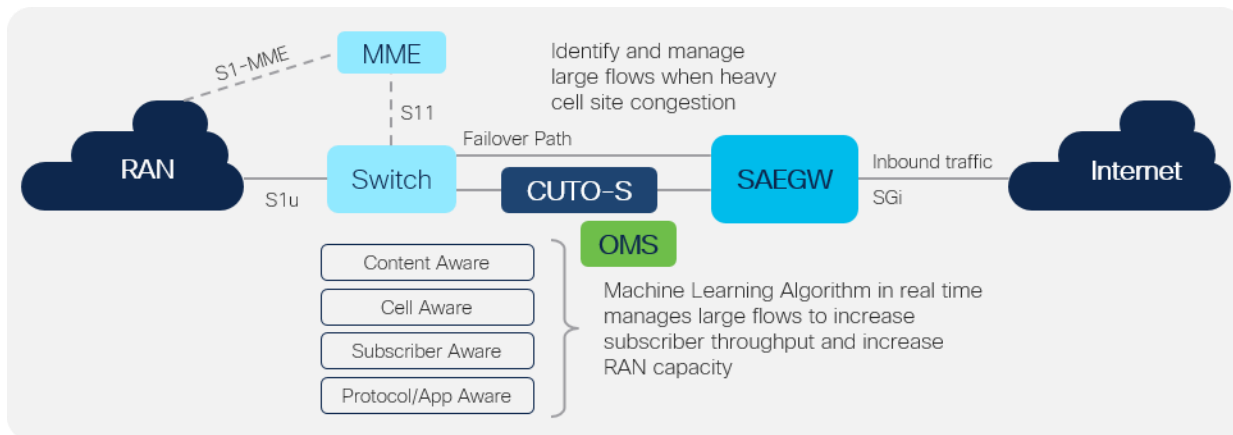

Figure 2.
Cisco Ultra Traffic Optimization deployed in standalone mode

Platform support

Product Family	Platforms Supported	IOS Images (Feature Sets) Supported
CUTO	Cisco ASR5500, Ultra Packet Core (VPC-DI), Ultra Cloud Core, Cloud Services Stack-Mobility	StarOS
CUTO- Standalone	Intel x86-based server	RedHat Enterprise Linux

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.

Cisco and partner services

Services from Cisco and our partners help you get the most value from the Cisco Ultra Traffic Optimization 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

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Sustainability topic	Reference
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Information on electronic waste laws and regulations, including products, batteries, and packaging	WEEE compliance

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Call to action

Let's build the efficient network together

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