Netwrapper for Dynamic Admission Control
An Enterprise SDN Application for UC&C

Scenario

Italtel Netwrapper is a powerful Software Defined Networking (SDN) application that “wraps” network and service applications, enabling a fruitful harmonization between them. This concept can be used in many fields of application like: Internet of Things (IoT), Smart Grid, Smart Cities and Collaboration.

The first solution that takes advantages of Netwrapper potentials is the Dynamic Admission Control within a Collaboration context. The adoption of new Unified Communications and Collaboration (UC&C) solutions (mainly based on video) is crucial for the business development and the strategy success of enterprises widely spread on geographies. Multiple UC&C applications often share the same network resources and are unaware of traffic generated by other services in terms of effective bandwidth usage.

Moreover, the traditional technologies managing Quality of Service (QoS), traffic prioritization and UC&C Call Admission Control (CAC) policies are no longer adequate for delivering an optimized Quality of Experience (QoE).

The introduction of a SDN approach allows a more flexible enterprise network management improving bandwidth efficiency also for UC&C applications. QoE challenges can be addressed following a fully converged strategy, taking into account at the same time network status and applications needs.

The first release of Netwrapper connects the IP network (via Cisco APIC-EM controller) on one side, and the UC&C applications on the other side (Cisco Unified Call Manager and Microsoft Skype for Business) at Enterprise level.
Benefits

Netwrapper understands UC&C services bandwidth needs and determines the right allocation of network resources, in order to provide the users with the best possible QoE. Its main goal is to provide a smart usage of higher-priority Classes of Services, ensuring that the bandwidth used by multiple UC&C applications does not exceed the Service Provider’s Service Level Agreement (SLA).

Bridging the gap between applications needs and network resources availability, Netwrapper enables a dynamic tuning of CAC rules and application prioritization. Netwrapper, built on top of Cisco Application Centric Infrastructure Controller Enterprise module (Cisco APIC-EM), is the outcome of the strong cooperation between Italtel and Cisco on Enterprise SDN technology.

Technical Description

Netwrapper is the “policy engine” of Italtel Dynamic Admission Control solution. The DAC solution adopts a 4-layers Enterprise SDN approach: Applications, Enterprise Controller, Programmable Networks and Human Interaction.

✓ Applications Layer

*It represents the link between network and business services. Netwrapper functions are positioned in this layer: it gathers from call controllers (Cisco Unified Call Manager and Microsoft Skype for Business) the infos about UC&C services (service topology, audio and video CAC bandwidth parameters, service bandwidth usage counters), matching them with network resources status provided by Cisco APIC-EM. Dynamic changes of bandwidth parameters can be applied according to specific policies.*

✓ Enterprise Controller Layer

APIC-EM is the Cisco SDN controller that creates a centralized topology view of the enterprise network. It interacts with Netwrapper providing network information and applying the network policies defined by Netwrapper algorithms.

✓ Programmable Network Layer

*It represents the physical layer where the information are collected and the policies are applied. The interaction with APIC-EM allows to fully address applications needs in terms of policies and quality.*

✓ Human Interaction Layer

*It allows Netwrapper (sw machine) and IT operators (humans) interact mutually through cloud systems (Cisco Spark and Tropo services) using text-to-sms and chatbot as automatisms for requiring information and for changing UC&C applications’ Admission Control policies.*

About Italtel

Italtel is a leading telecommunications company in Network Functions Virtualization (NFV), managed services and all-IP communication. It designs, develops, implements solutions for Next Generation Networks and Services. It offers Solutions and Proprietary Products, integrated Professional Services; IT System Integration Services; Network Integration and Migration activities to Service Providers and public or private Enterprises. Italtel has developed solutions in the areas of Unified Communication, Collaboration, Data Centers, SDN, Smart Grid, IoT, eHealth and Cyber Security. Italtel addresses the following verticals: Telecommunications, Public Sector, Health, Defense, Finance, Energy, Manufacturing. It counts among its customers more than 40 of the world’s top TLC Operators and a large number of companies in Italy and abroad. Italtel is present in many countries including France, UK, Spain, Germany, Belgium, Poland, Greece, USA, Argentina, Brazil, Colombia, Peru, Ecuador.

Contact us:

Marketing_communication@italtel.com
www.italtel.com

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