

JGN-X Automated Resource Provisioning (JARP)

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1. Overview

JARP is a JGN-X research project which proposes the QoS architecture in automated resource provisioning (ARP) based on authorization policies. ARP refers to a service which the user to automate a creation, modification and cancellation virtual circuit in immediate/advance manner. We selected the OSCARS for a control plane and MPLS as a transport technology, because we expect an implementation of our proposal in a future production stage in JGN-X. As shown in Fig.1, the OSCARS is extended to provide multiple ARP services, and their topology abstraction and its mapping to physical devices, resource computation, authorization policies, configurations and QoS policies for each ARP service are individually processed. The user, either human or application-software, is assigned the authorization to use resources of certain ARP services. The QoS architecture is proposed to achieve multiple classes of service (CoS) provisioning range best-effort to guarantee of bandwidth and delay. The prototype was tested on Juniper MX-80 routers.

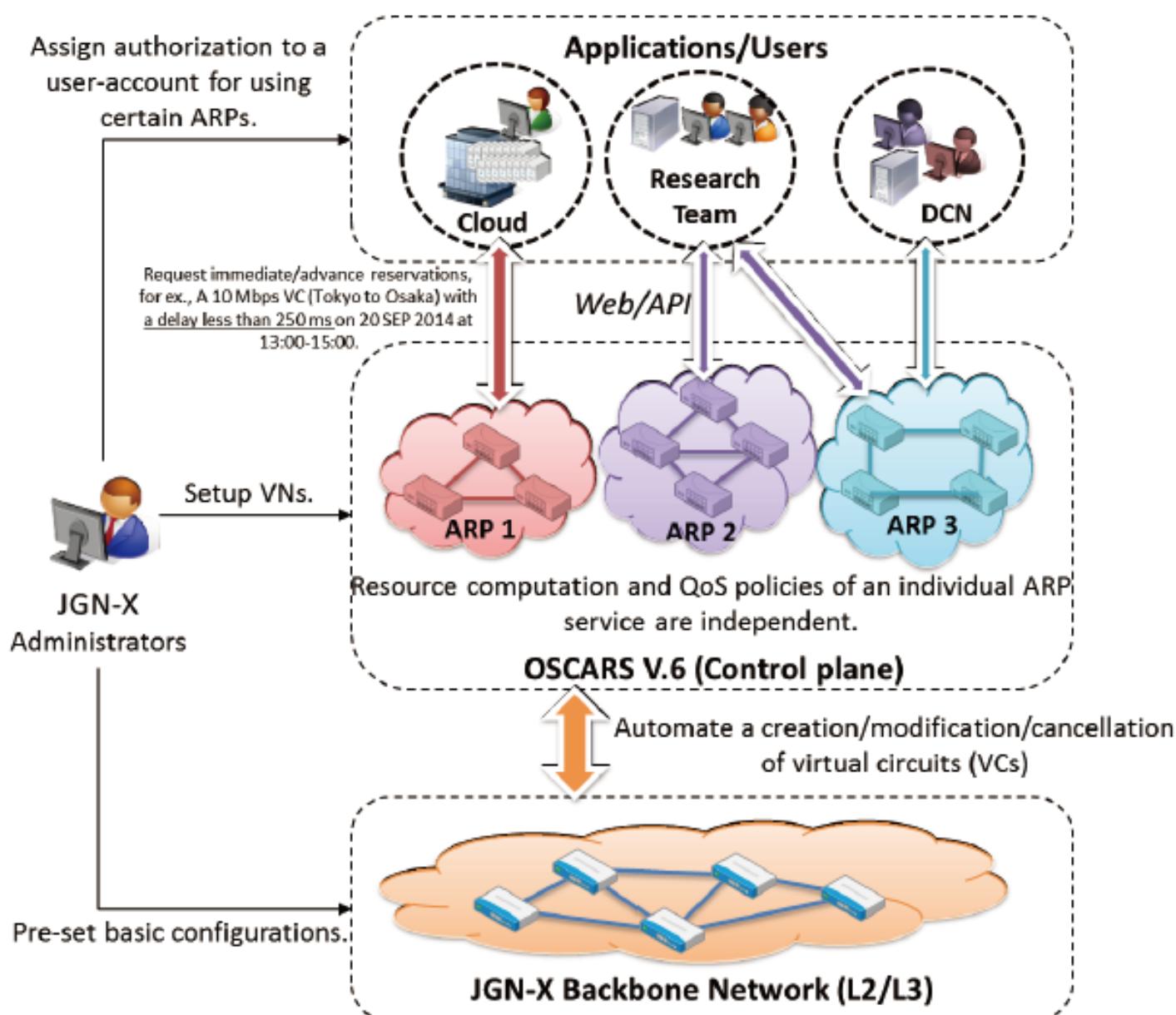


Figure 1 JARP architecture

2. Process in JARP

As shown in Fig.2, the administrator assigns authorization to a user-account for using resources in certain ARP services. After logging in, the user sees a list of authorized ARP services, selects the ARP service, and requests a virtual circuit (VC) on a circuit creation webpage.

The request $R = \{ \text{source (S)}, \text{destination (D)}, \text{amount of bandwidth (BW)}, \text{start time (tStart)}, \text{end time (tEnd)} \}$. Each ARP service offers either one-CoS or multi-CoS as follows.

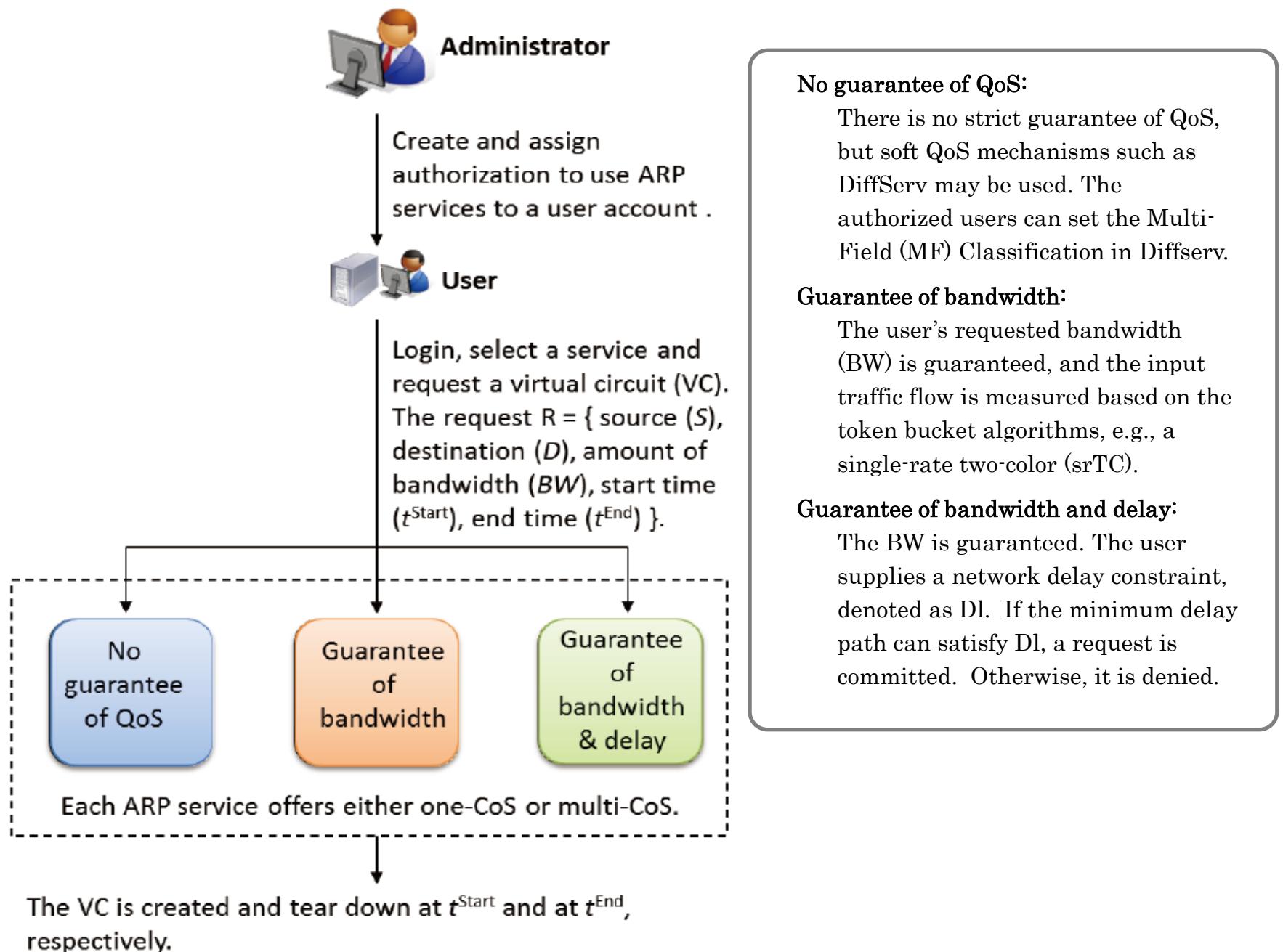


Figure 2 Process of service

3. Contact

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