squire technologies

ONLINE CHARGING CASE STUDY

Integrating OCS to Facilitate Policy and Billing
Across Multi-Generation Networks.

5G | 4G | 3G | 2G

Ensuring Continuity of Online Charging

As networks evolve Online Charging Systems need to facilitate charging and billing reconciliation across multi-generation, multi-protocol and multi-segment networks.

Squire Technologies Interworking Function makes OCS system integration with the core network seamless across multi-generation networks. The IWF provides forward and backward compatibility as signalling traverses multiple networks, with comprehensive protocol support for 5G Nchf / HTTP2, 4G / LTE Diameter, and legacy 3G CAMEL protocols and more.

The Interworking Function provides:

Authentication: Identify the user is legitimate.

Authorisation: What the user is allowed to do.

Accounting: Monitoring, recording and limiting the user's usage.

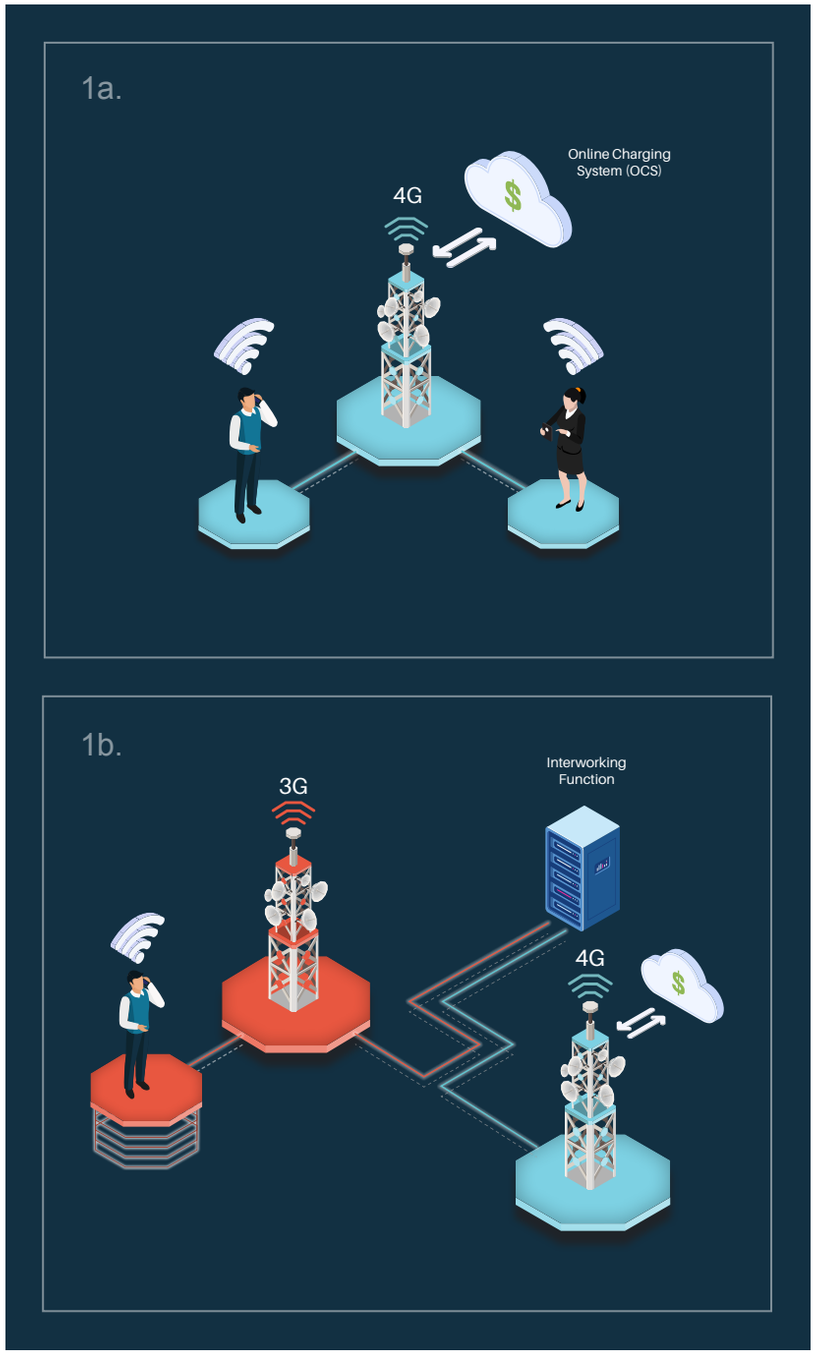
Online Charging System

We worked with a mobile operator who had deployed a state-of-the art OCS into their network and were at the stage where they were testing their roaming services.

The requirement was to ensure that as subscribers roamed outside their network they'd be able to seamlessly communicate with the home network from wherever they where roaming from, be it from a 5G, 4G or 3G network.

The OCS supports all Diameter interfaces necessary (Ro, Gy, Sy etc) for 4G / LTE, while all charging functions in a 5G network are handled over Nchf and HTTP2, and in 3G networks over legacy SS7 CAMEL protocol.

It further transpired that pre-pay subscribers in the 3G network were doing credit checks/updates over USSD (Unstructured Supplementary Service Data) a protocol used in 3G for billing, location based services, mobile money and menu based information services.

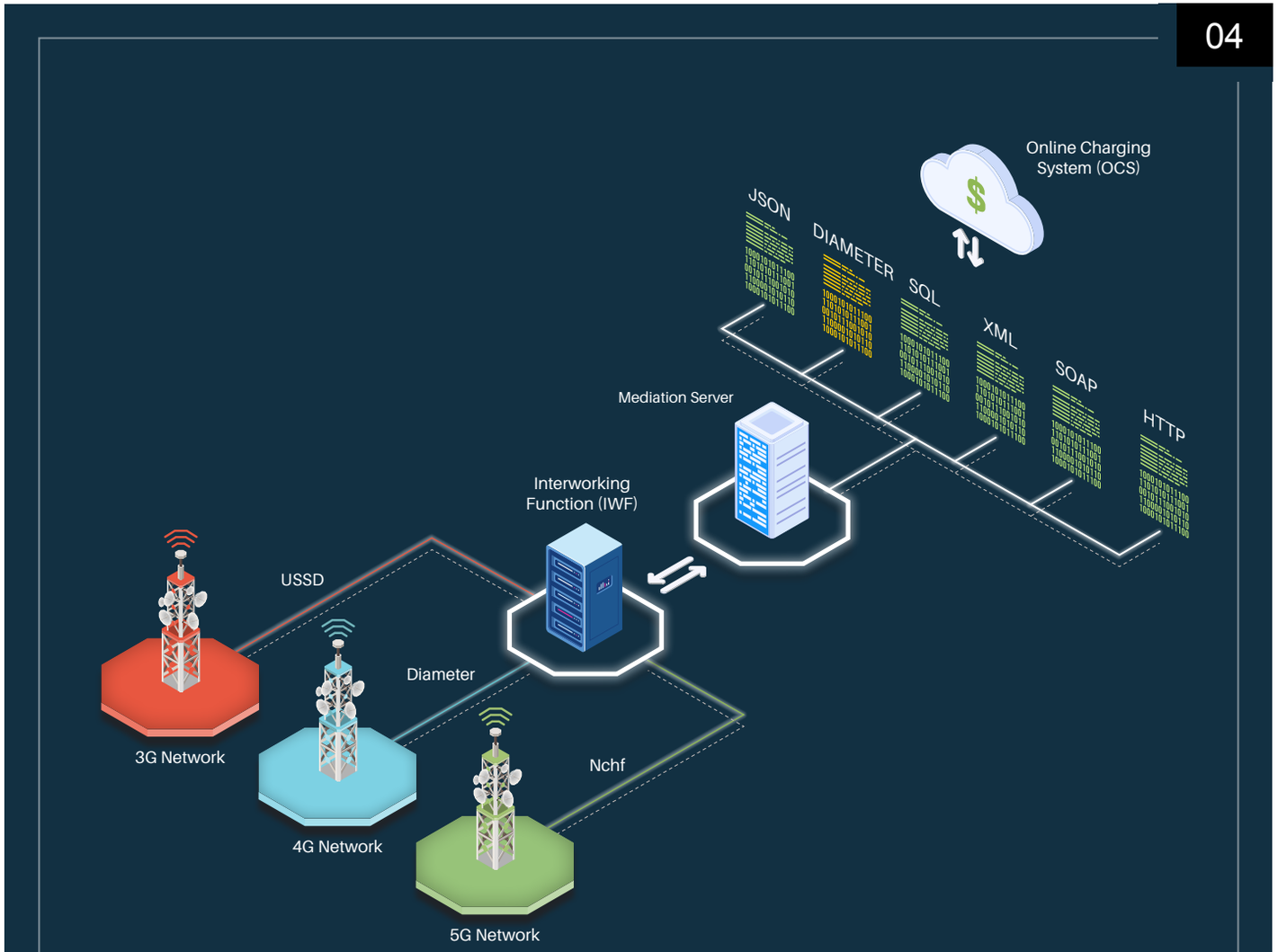


Mediation Server

The Interworking Function as with all Squire Technologies products is tightly integrated with our Mediation Server that allows clients to easily and rapidly extend their service offering, enabling interop to a range of interfacing technologies such as XML, SOAP, SQL, RADIUS, HTTP, HTTP/2 and proprietary API's etc.

Our customer was able to extend the functionality by utilising the HTTP interface supported on the OCS platform and implement a full USSD menu based application for their pre-pay subscribers.

They were also able to develop an interface to accommodate a proprietary Advice of Charge message sent over USSD.



MEDIATION SERVER

The Mediation Server provides flexible API's to allow rapid deployment of new interfaces. Used in this instance to provide USSD interface.

NFV Deployment

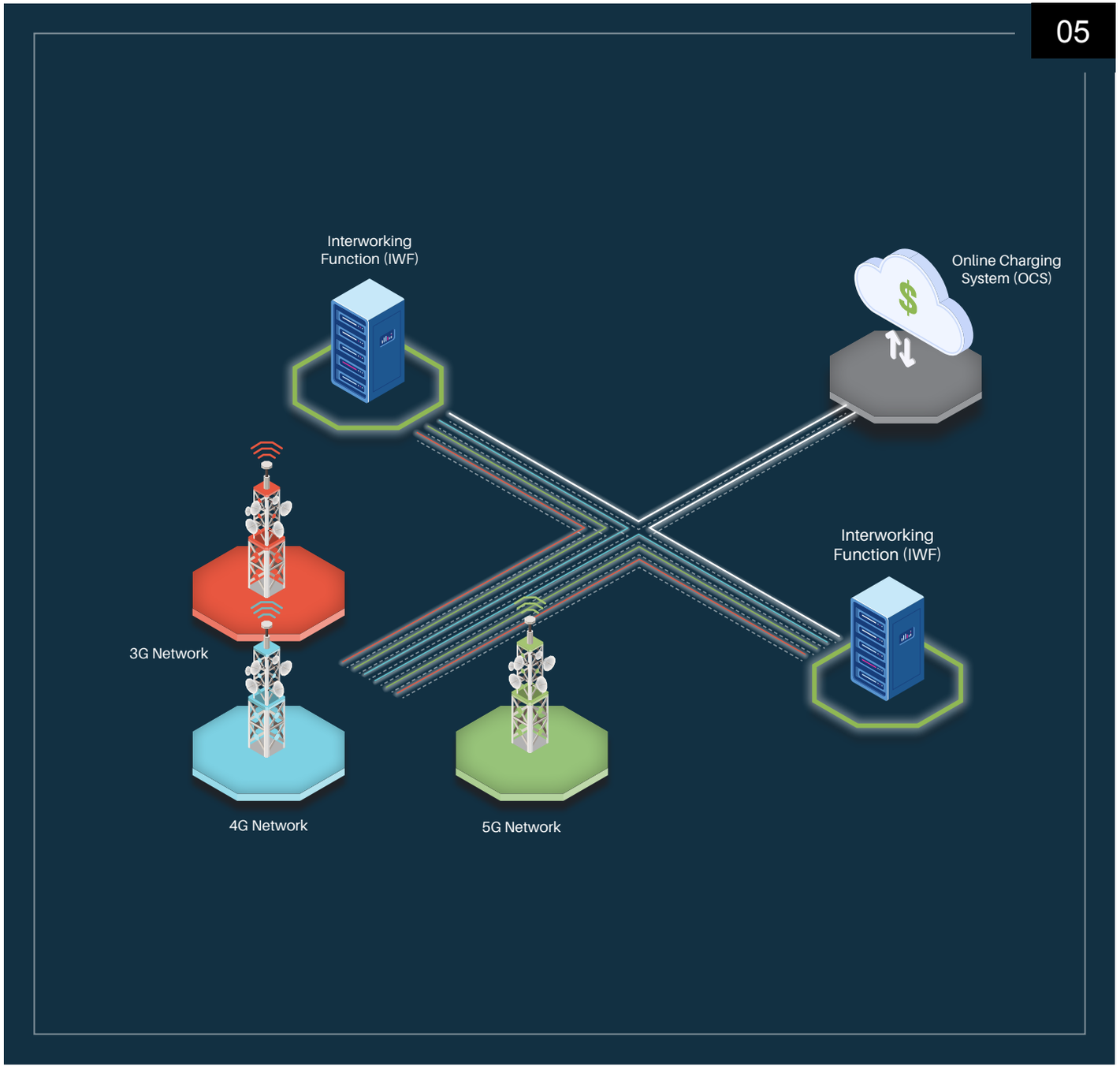
The Interworking Function is deployed on public and private networks.

Microsoft Azure | Google Cloud | aws | vmware

The IWFs provide resiliency through redundancy, load sharing and balancing via sophisticated on-board routing.

In the scenario where there is IWF node failure, all ongoing sessions are maintained.

If the OCS platform is unavailable, access would be granted and a CDR generated for billing reconciliation.



Optimizing for Network Demand

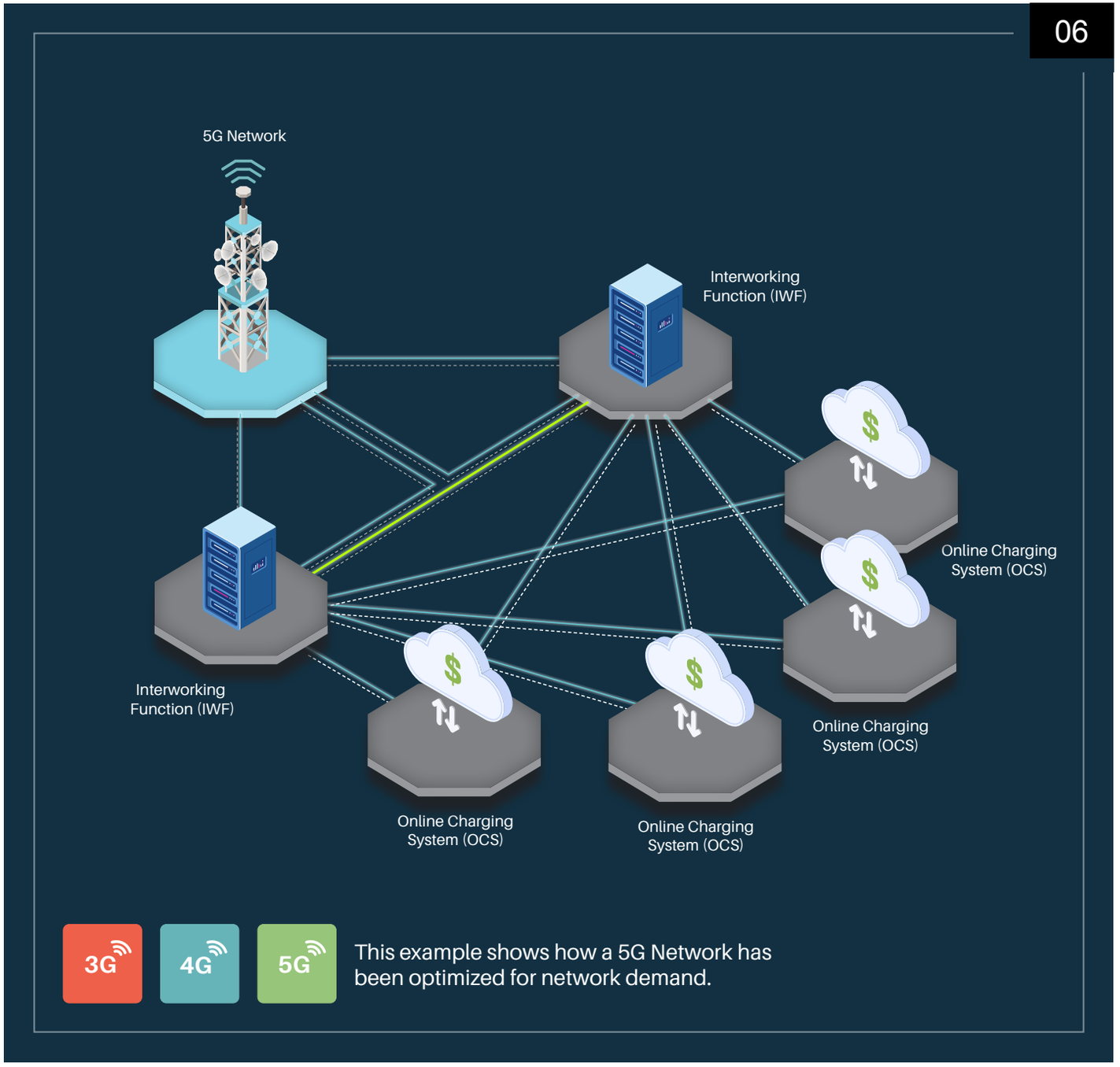
As network demand increases an operator will want to launch new instances of the OCS platform. Each OCS will be configured to point whatever interface protocol's are configured at the pair of IWF's which will automatically route messages to and from the appropriate OCS.

Load Balancing

Sophisticated load balancing can be configured so that, for example, if OCS version.1 is congested then the IWF will automatically route to the next available OCS.

Session Binding

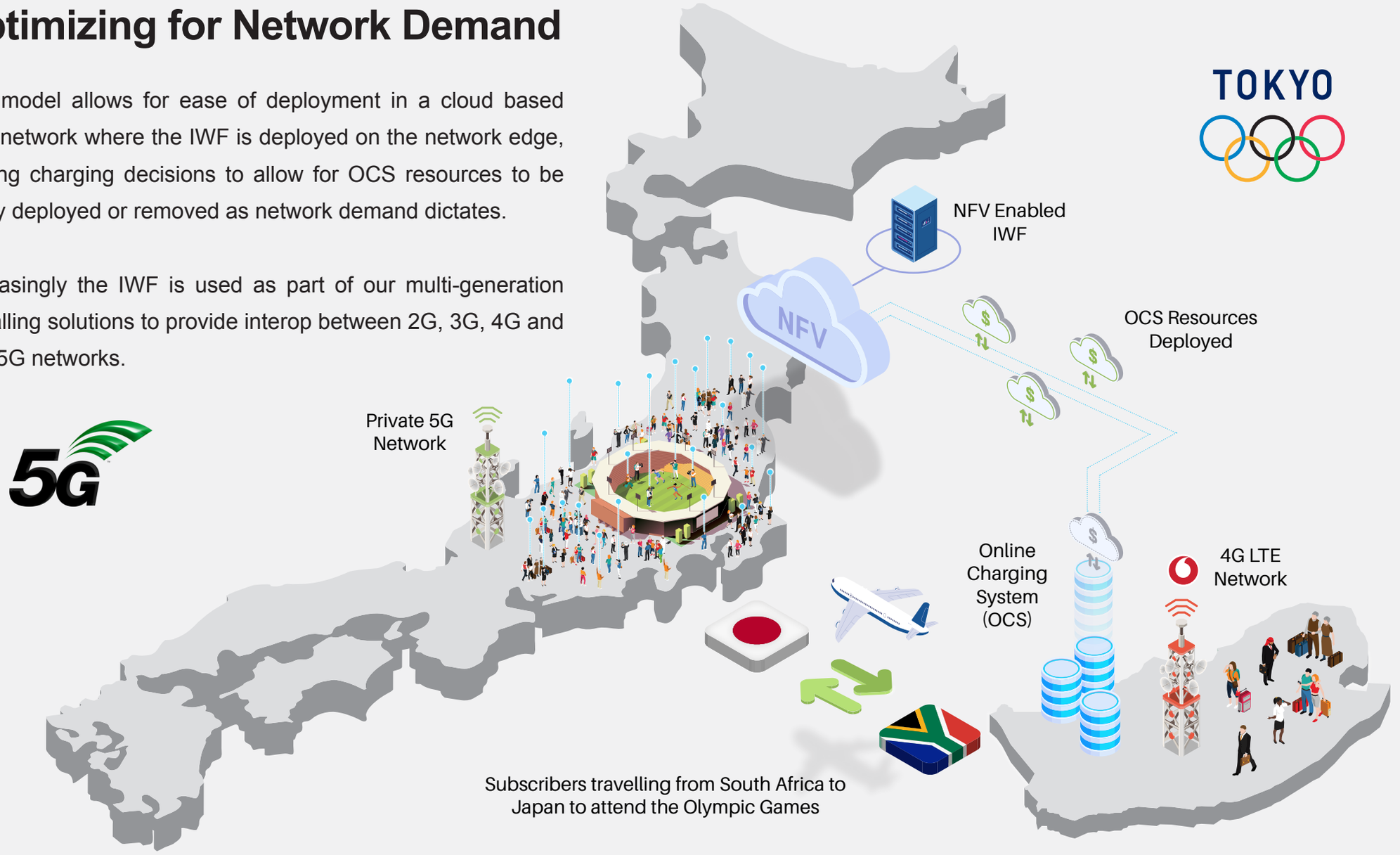
Session binding support ensures correct online credit control is performed when multiple, simultaneous services are billed for a single subscriber.



Optimizing for Network Demand

This model allows for ease of deployment in a cloud based NFV network where the IWF is deployed on the network edge, making charging decisions to allow for OCS resources to be easily deployed or removed as network demand dictates.

Increasingly the IWF is used as part of our multi-generation signalling solutions to provide interop between 2G, 3G, 4G and now 5G networks.

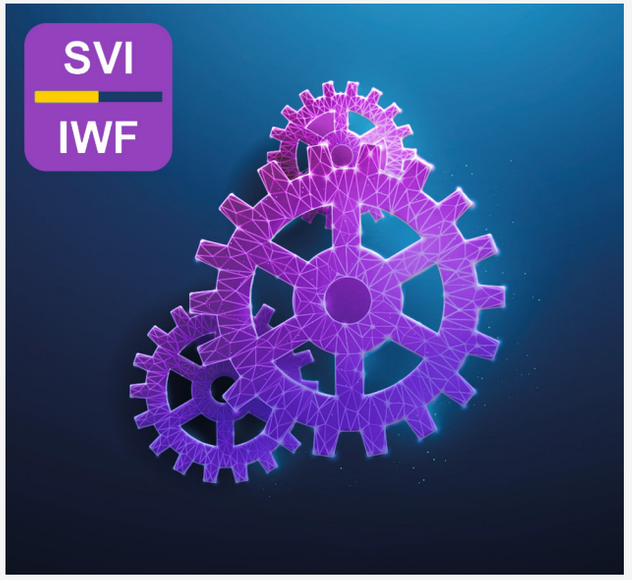


HTTP/2 Signalling Controller | HSC

Our Interworking Function product (IWF) is part of our HTTP/2 Signalling Controller (HSC), which consists of three components. Any combination of these components can be deployed in a single or distributed architecture. Find out more about our DSC products.

Service Communication Proxy provides scalable, centralised routing of HTTP/2 messages in a multi-vendor, multi-node environment within IMS and 5GNR core networks.

Security Edge Protection Proxy provides secure authentication, authorisation and subscriber policy exchange across 5GNR networks.



Interworking Function creates seamless interworking between legacy and NGN networks with HTTP/2 and 5G Nchf to Diameter, SS7 CAMEL, MAP, and RADIUS, interop.

‘Squire Technologies’ is a trading name of Squire Technologies Limited, a private limited company registered in England & Wales with company number 04353329.
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