

Company Name: Cisco Systems India Private Limited

Product / Solution Name: ASR 901: Advanced services mobile wireless router for 2G/3G/4G

Innovation Imperative:

In next generation 3G/4G/LTE mobile backhaul networks, there is a strong need for more L3 features, service differentiation, and sophisticated traffic engineering because of 1) explosive growth and high density of mobile subscribers in emerging countries, resulting in new monetization models, and 2) rich set of applications with the adoption of smart mobile devices in developed countries. In emerging countries, there is also a large installed base of 2G voice-based networks, which are still a huge revenue generator, making it critical to provide a transition path from TDM to IP based infrastructure. New technologies such as IEEE 1588 are emerging and gaining acceptance, but existing products do not have complete, working implementations of such advanced technologies.

Brief Overview of the Innovation:

ASR 901 is Cisco's next generation mobile wireless router that addresses the needs of Access, Carrier Ethernet, TDM backhaul and Cell Site Gateway. The features and price point of this product make it very versatile and fit a range of applications from 2G/3G/4G/LTE cell sites, CE/ME/Business Access, NID(Network demarcation device), to Optical Satellites, resulting in new revenue streams for the company. It is also the first Cisco product to be completely developed from the India site – from conception, architecture, hardware/software implementation, testing and qualification to marketing. The product definition, its design tradeoffs, execution and development of ecosystem partnerships are a pioneering model for IT MNCs to develop complete, innovative products from their remote sites. It is also a unique case of reverse innovation, where even though driven by critical emerging countries' requirements, it is now a competitive product in developed countries as well.

The ASR 901 is an environmentally hardened 1RU router with 12Gbit fiber/copper ports and 16 T-1/E-1 ports to support TDM backhaul. It supports Ethernet virtual connections for IEEE 802.1Q VLAN tagging, 802.1ad, Resilient Ethernet Protocol, 802.3ad Link Aggregation Bundles, Layer 2 Protocol Tunneling (L2PT), Ethernet over MPLS (EoMPLS), Synchronous Ethernet, IEEE 1588v2, among other advanced features. It is extremely power efficient with typical power consumption ranging from 35-45W.

Benefits to the customer:

The ASR 901 helps the cellular service providers build 3G/4G networks with reduced total cost of ownership. For providers with large installed 2G networks, it provides a transition to IP networks without sunk costs. With its pay-as-you-grow architecture and features, service providers can install once and scale easily over time. The innovative features of ASR 901 open the doors to many new services and applications. As an example, a ruggedized variant of the

ASR 901 can be deployed in any climatic conditions, in locations that were earlier unimaginable and no other products to carry cellular traffic could be deployed - along the street poles, side of the railway tracks, and even power grids! Its feature richness combined with compact form factor and power efficiency, opens up different verticals for cellular access technologies whether it is the mobile space or for NID segment or multi-tenant connectivity (metro/optical connectivity) to the end customers.

Business opportunity:

The advent of iPads, smart PDAs, video, commerce, and other transactions over mobile devices is driving 3G/LTE network development. In India and other emerging countries the mobile subscriber growth rate is 15% YoY. This translates into Service providers needing to scale with new and high speed/scalable, 3G/LTE compatible equipment. The gradual network transformation from 2G to 3G, 4G/LTE makes it a significant component part of the overall solution. The business opportunity of ASR 901 is thus directly proportional to the growth of mobile markets across the world. The ASR 901 already has top tier customers from North America, Europe, Africa and Asia, with several other potentials.