

Accelerates Data Delivery with SkyLab Transport Accelerator (STA)

STA accelerates traffic by analyzing traffic & routing conditions in real time to find the fastest route between the data source and the destination even on 2G/3G/4G, satellite and many types of IoT radio networks. STA reduces network latency, increases throughput, optimizes transport layer performance and reduce overall network congestion problem.

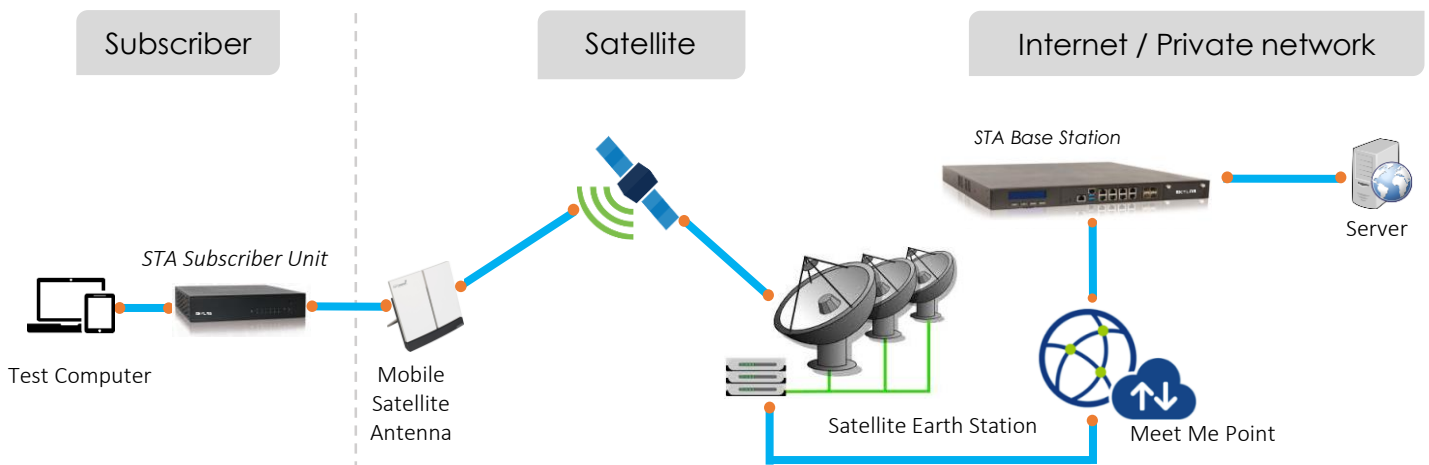


STA Subscriber Unit









STA Base Station

Use Case Scenarios



Use Cases

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Leased Line Optimization
 In addition to wireless networks, STA can optimize fixed line connections as well. STA addresses a number of traditional protocol weaknesses to accelerate and solidify your service without upgrading bandwidth.
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Satellite Optimization
 While convenient, Satellite experience can often be frustrating due to high latency, high packet loss and limited bandwidth. STA can improve user experience by accelerating connectivity in a cost-effective way without increasing bandwidth capacity.
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3G/4G Optimization
 Wireless cellular networks are inherently unpredictable and service providers do not guarantee their quality. With STA, it is possible to give users a consistent experience by providing a more stable connection with predictable latency.
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High-Speed VPN
 Traditional VPNs over public internet are often unstable and unreliable. By integrating VPN technologies together with STA users can achieve service comparable to leased lines without the cost.
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Live Video Streaming Optimization
 Reduce traditional protocol pitfalls of live video streaming through STA's Adaptive Congestion Control and Automatic Optimization features. Bandwidth capacity is very likely not the problem or solution to your troubles.
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Application Acceleration
 Fast and predictable user experience is essential for successful applications. Not only will STA accelerate your application it will also provide users with the consistent experience they expect.

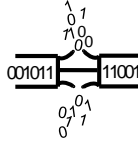
The world of "Things" are becoming more connected with the rise of the IoT Revolution. The fast adoption of IoT is made possible by the miniaturisation of wireless modules as well as cloud computing resources made available globally. However the high growth for IoT sensors and related aggregating agents will lead to new sets of challenges faced by large scale network operators. Delivery of data stream from large number of IoT data sources create large amount of system overheads such as multiple systems handshakes and acknowledgement packets. In addition, over-the-air wireless

communications operating in different conditions of spectrum availability, RF interference, changing bandwidth as well as a multi-path environment introduces more random walks of wireless propagation delays. Combining other factors such as legacy protocol not suitable for wireless transmission and non-optimised routing decisions within the cloud leads to repeated snow balling effect of intermittent event impairing overall service performances. The diagram below identifies some critical issues to be considered.



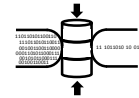
BANDWIDTH VARIATION

- Limited radio spectrum
- Limited base-station capability
- Constantly changing bandwidth
- Propagation delays



PACKET LOSS

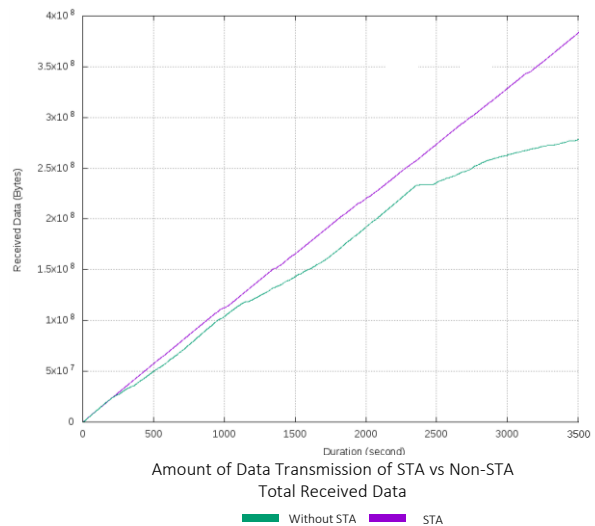
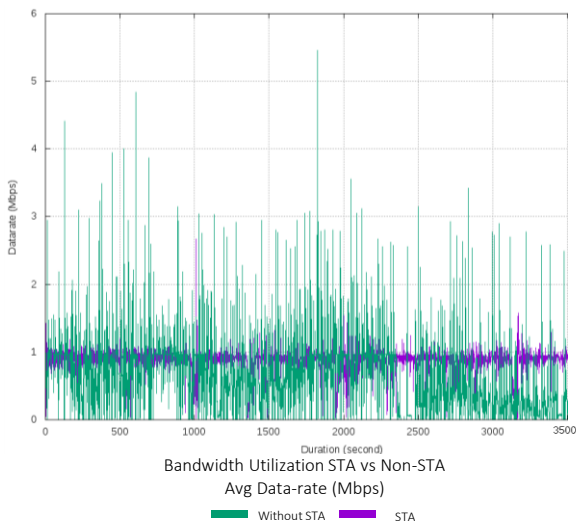
- Noise Interference by other devices
- Congestion
- Retransmission



CONGESTION

- Lack of protocol support for constantly changing situation
- Snow-ball effect by intermittent failure of the service
- End to End Latency

System Results Comparison between STA vs Non-STA Cellular based Network



Key Benefits

- | | |
|---|--|
| Improved Network Performance | - Provides higher through-put and lower latency |
| Adaptive Congestion Control | - Optimized congestion control mechanism for radio / mobile networks that reduce the impact of packet loss and congestion problems. |
| Transport Layer Acceleration | - Optimizes transport layer performance to address traditional protocol three-way handshake, slow start and excessive retransmission due to packet loss and congestion, and packet coalescing and compression. |
| Transparent Turn Reduction | - Reduces the unnecessary number of back-and-forth transfer between both ends. |
| Multi-Path Delivery | - Communicating through 2 different types of networks (e.g. LTE and WiFi) |
| Network Change Detection & Automatic Optimization | - Detect changes in the type of network and optimize STAP variables accordingly |
| Secured End to End Encryption | - Protecting data integrity and confidentiality by authenticated encryption method using Diffie-Hellman and AES-128-GCM and AES-256-GCM cryptographic algorithms, ensures safe end-to-end secure data delivery |