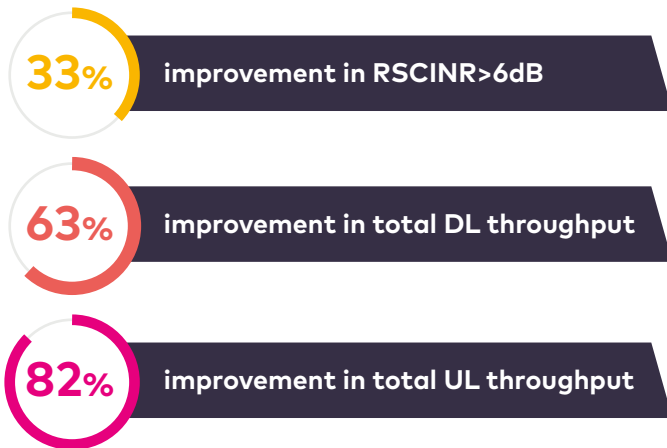


case study



iDAS/oDAS performance optimization of hi-cap NFL stadium for leading Tier-1 mobile network operator

The highlights



The background

This NFL stadium, a major hi-cap venue with a 17.3-acre footprint, has a seating capacity of approximately 70,000. On average, 30 events (games and concerts) are held there each year.

Although a leading multinational Tier-1 mobile network operator (MNO) had previously deployed 4G LTE in-building solutions (iDAS/oDAS) at the stadium, major performance issues existed – including poor game day KPIs (low data throughput, poor signal quality etc.) and overall poor user experience. The result was revenue loss and concerns regarding customer satisfaction.

Amdocs was engaged to investigate the issues and optimize the venue.

The challenges

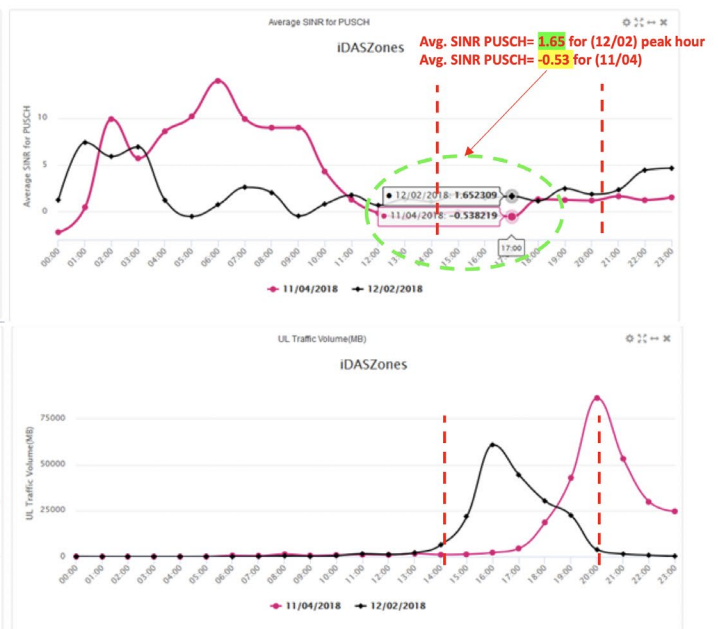
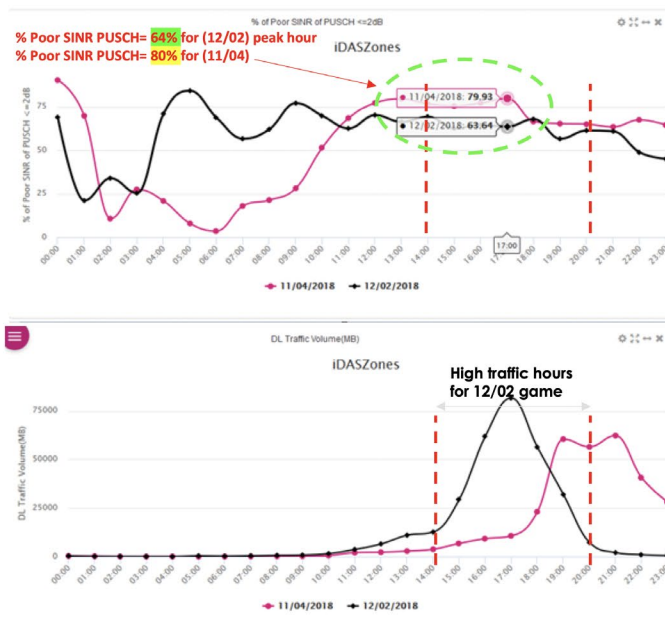
- With multilayered frequencies and multiple radio technologies in use, the operator was facing uneven traffic distribution, very high interference issues and poor user experience throughout the stadium
- As an open stadium environment divided into more than 30 zones, cells from different zones were overshooting all over the coverage area, causing major cell dominance issues
- Multiple network operators were sharing the same in-building network infrastructure (4G/3G), which was owned by a single operator/neutral host. This severely limited the scope of any possible physical optimization, since a physical change in the infrastructure could have also affected the other MNOs' networks
- Proposed optimization recommendations for footprint optimization based on walk test results were mainly dependent on parameter tuning and DAS end power changes
- Limited venue access resulted in a significant challenge for collecting correct walk test data within 3 days for the entire stadium
- Live event optimization required real-time alarm checks, KPIs analyses and proposing required parameter change implementations

The solutions

Amdocs In-building and DAS services were implemented to ensure a seamless network experience. The services included:

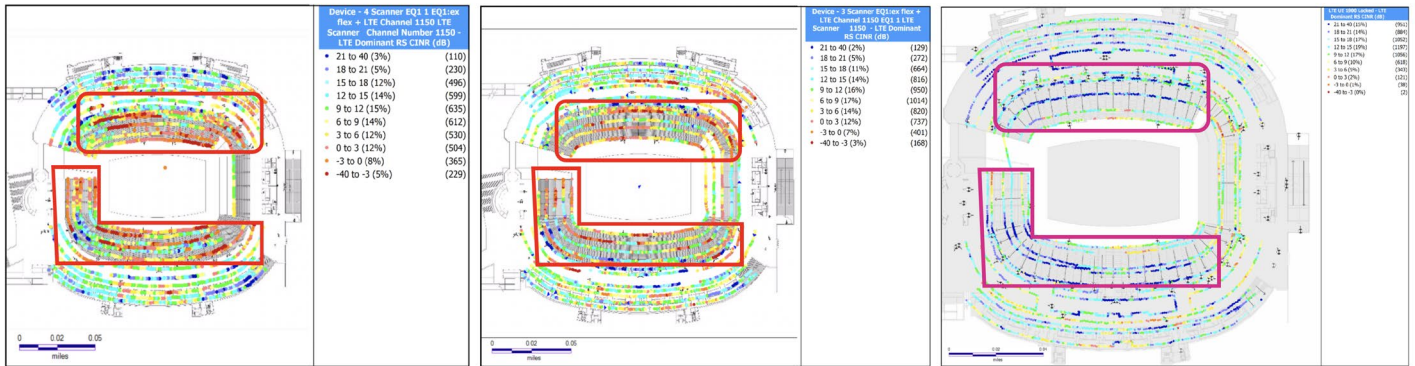


- An E2E optimization process was applied to ensure identification of key issues and their analysis based on real data
- Detailed analysis of dominant and individual cell footprints was performed for each channel; iBwave predictions were performed to propose accurate short- and long-term change recommendations
- All major KPIs were analyzed; parameter tuning, and LTE-Advance features were checked and implemented for optimum utilization of each frequency layer and proper layer management
- Live event optimization: live KPIs were closely monitored and analyzed every 15 minutes during the event optimization; automatization tools were used to ensure quicker data retrieval and analysis; scripting was used for faster bulk parameter changes
- The E2E process was documented and shared in a transparent way with the client in the closeout package



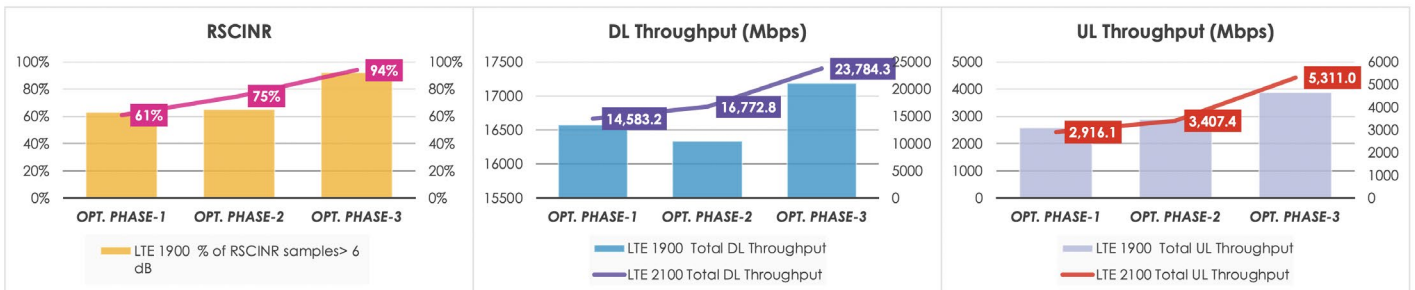
Live Event Monitoring KPIs

The results



LTE CINR Improvement 1-2-3 phases

- Zones with hardware issues (e.g. non-transmitting antennas, crossed connections, etc.) were rectified, resulting in better coverage and cell dominance
- Clearing overshooting iDAS/oDAS cells from multiple zones throughout the stadium and from surrounding macro cells significantly improved LTE RSCINR
- Significant improvement in LTE-A Carrier aggregation utilization resulted in much improved DL and UL throughput
- Data and VoLTE traffic were improved, accompanied by increased DL and UL throughput values
- Cleaner radio conditions facilitated higher modulation usage, resulting in higher throughput



KPIs Improvement

Business benefits



Improved network quality



Improved user experience



Improved operational efficiency and revenue

For more information, visit [Amdocs 5G Fast](#)

about amdocs

Amdocs is a leading software and services provider to communications and media companies of all sizes, accelerating the industry's dynamic and continuous digital transformation. With a rich set of innovative solutions, long-term business relationships with 350 communications and media providers, and technology and distribution ties to 600 content creators, Amdocs delivers business improvements to drive growth.

Amdocs and its 25,000 employees serve customers in over 85 countries. Listed on the NASDAQ Global Select Market, Amdocs had revenue of \$4.0 billion in fiscal 2018.

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