



# MediaWarp RAN Congestion Management

## MediaWarp RAN Congestion Management

### Accurately Detect Cell Congestion and Signaling Anomalies

Determine the degree of congestion in each cell by accurately tracking the number of users, applications and devices in each cell and take action before they impact subscribers

### Determine Signaling and Bandwidth Resource Consumption per Application & Device Type

Analyze the performance of all device types, including call drop rates, call setup failures, poor signal quality and anomalous signaling events. Identify popular, buggy or problematic applications generating a disproportionate amount of signaling traffic in the network

### In-depth Mobile Intelligence for Making Strategic Decisions

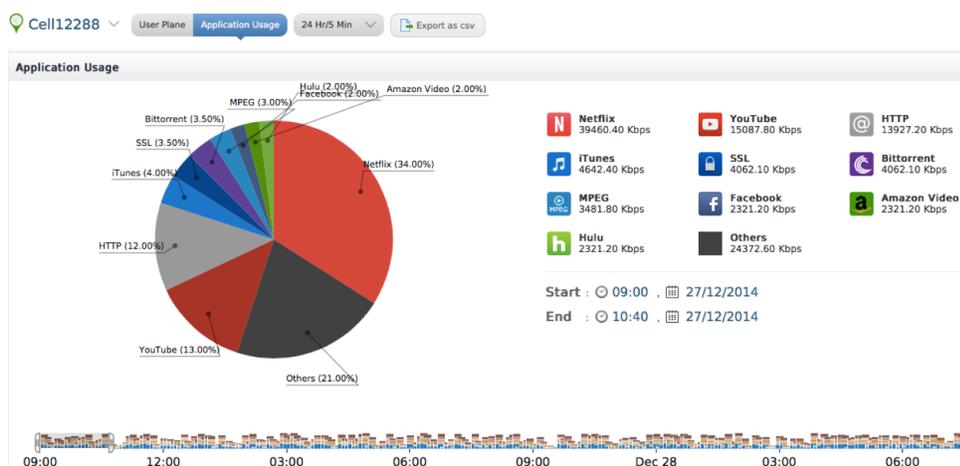
Capture key metrics and attributes from the mobile network at the RAN, device, and application level to provide sophisticated reports on the data usage in the mobile network

Demand for wireless data is outpacing available mobile broadband infrastructure, leading to poor subscriber quality of experience (QoE) and customer churn. As a result, mobile operators are forced to undertake expensive and complex capacity upgrades to maintain and enhance subscriber QoE. Mobile operators typically implement traffic management and optimization techniques at the Gi LAN – however, such broadly applied network policies generally results in RAN resource inefficiency and inferior subscriber QoE owing to lack of awareness of RAN congestion status.

MediaWarp RAN Congestion Management is built on top of the MediaWarp end-to-end Content Delivery Platform and performs real-time correlation across multiple dimensions - data plane, signaling plane, application, network, and device by tapping into the signaling and IP flows across both 3G and 4G/LTE networks. Deployed between the RAN and Core of the mobile network, combining RAN conditions, application, and signaling information and subscriber awareness in real-time allows operators to take appropriate optimization actions to maintain subscriber QoE while minimizing network capital and operational expenses.

## Benefits

Identifying the applications responsible for causing congestion allows the appropriate congestion control techniques to be targeted to those applications and have the greatest impact. Using policy-based decisions, precise actions can be taken on a per-cell, per-subscriber and per-content type basis enabling mobile operators to optimize and manage their most valuable network asset.





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## Reduces Network CapEx, OpEx, and improves QoE

MediaWarp RAN can support Caching, JIT Packaging, and Ad-stitching at the point closest to the subscribers – the RAN edge. This placement reduces network bandwidth needs and significantly improves the subscriber QoE.

## Network Optimization and Planning

Mobile operators can understand usage trends at a cell level in order to facilitate more accurate forecasting of capacity utilization and network growth. This information can also be used to identify “bad” or underperforming cells, plan upgrades and optimize return on invested capital

## Software-Only Solution

MediaWarp RAN is designed to run on 1U COTS servers, virtual and cloud environments. Unlike competing solutions, there is no need for expensive appliances.

## Supports both 3G and 4G/LTE Networks

The solution supports both 3G and 4G/LTE networks simultaneously. The flexible architecture enables support for new signaling and streaming protocols easily with very little change.

## Intuitive Easy-to-Use Web-based Portal

Our highly visual Portal allows operators to quickly get insight into their radio networks. In addition to presenting a graphical view of the congestion degrees in all the cells, the Portal also reports the aggregate RTT, bandwidth usage, number of users and breakdown of application usage in each cell.

## Innovative Cell Congestion Detection Algorithm

Information from both signaling and data plane sources, such as dropped calls, unsuccessful call attempts, TCP retransmissions, TCP timeouts, TCP round trip times, bandwidth usage and user count is used to determine the degree of congestion in a cell.

## RAN-Aware Intelligent Traffic Optimization

Mobile operators need to leverage real-time awareness of user and radio conditions and align this intelligence with traffic and content delivery decisions. By positioning this ability closer to the network edge an operator can implement intelligent traffic management decisions that provide optimal utilization of the network resources, enhance the subscriber’s QoE and offer new business opportunities.

## Support Edge Services at the RAN Edge

MediaWarp RAN solution can support various edge services such as Just-In-Time Packaging, Ad-stitching, CDN and Transparent Internet Caching etc. at the RAN edge closer to the end user. In addition to saving network CapEx and OpEx, delivering content closer to the edge significantly increases subscriber QoE as well.