



(your logo)

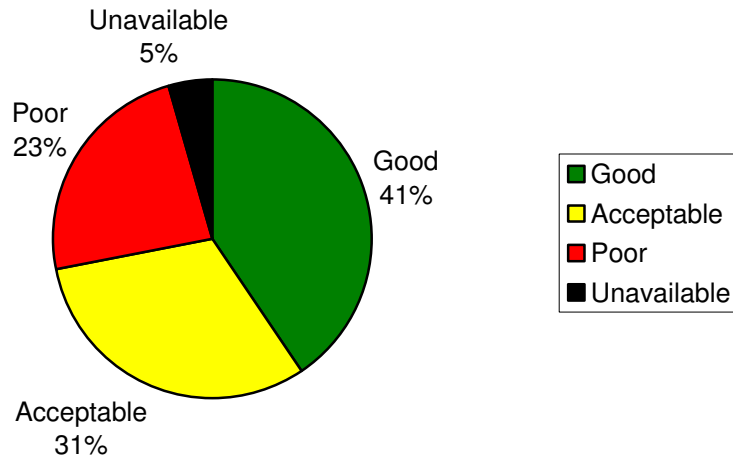
Sample Report
Standard VoIP Assessment

Call Summary

Call Quality Summary

The chart below shows the percentage of all calls completed during the assessment that fell into each category of call quality. "Unavailable" call quality indicates that a call could not be connected or failed.

Call Quality Summary

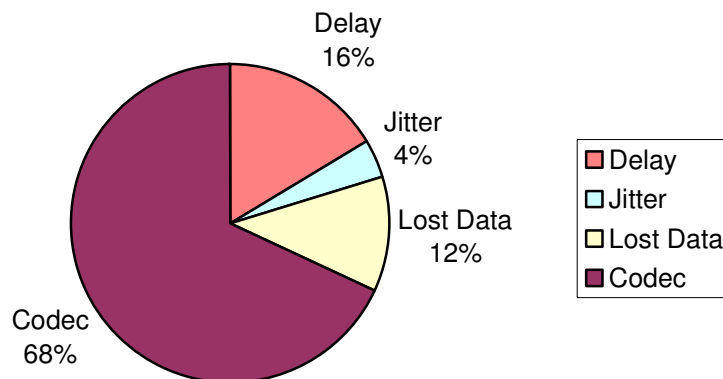


Good - At least 4.03 MOS	Acceptable - At least 3.60 MOS	Poor - Any lower value
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Factors Affecting Call Quality

The chart below shows each call quality impairment factor's contribution to the overall call quality. Each factor's contribution is shown as a percentage of all call-quality impairments.

Factors Affecting Call Quality

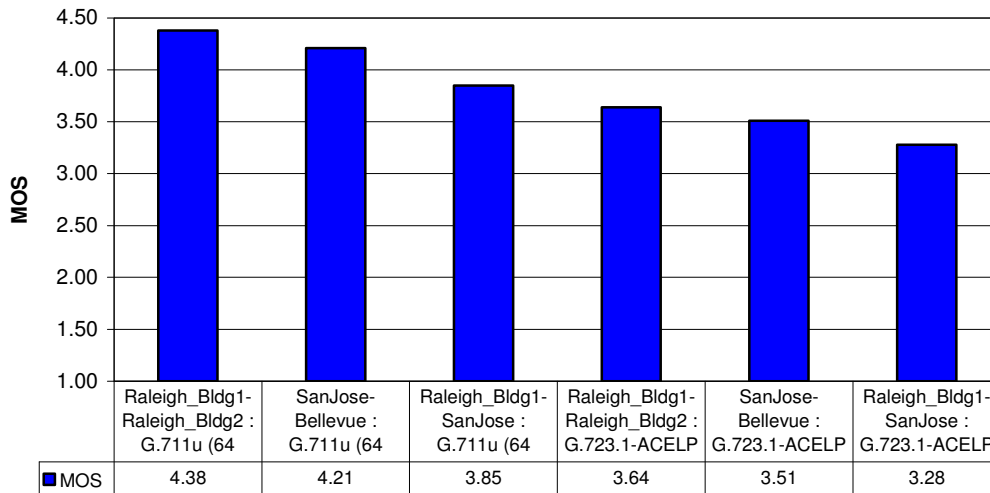


Calls by Group

Call Quality Summary by Call Group

The chart below shows the call quality values for up to 10 call groups, ranked from highest MOS to lowest.

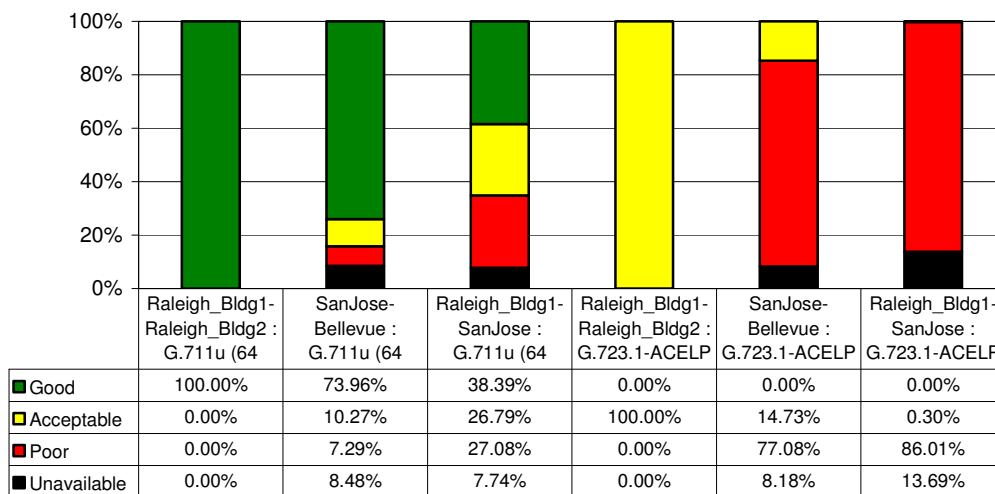
Call Quality Summary by Call Group



Call Quality Evaluation by Call Group

The chart below shows the average MOS values for up to 10 call groups, indicating the percentage of completed calls that fell into the MOS result ranges defined for the assessment.

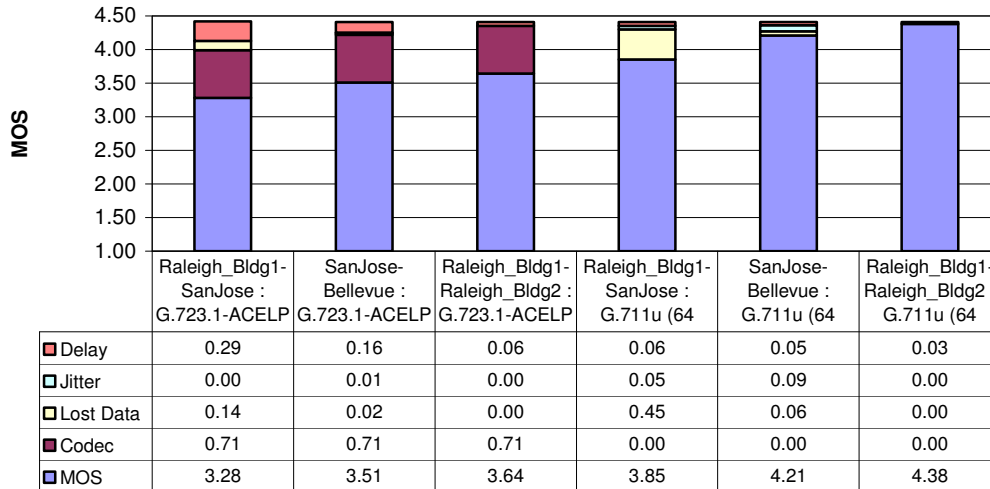
Call Quality Evaluation by Call Group



Factors Affecting Call Quality by Call Group

The chart below breaks out call quality impairment factors to show the impact of each (in points subtracted from the MOS) on the overall call quality for up to 10 call groups with the lowest MOS values.

Factors Affecting Call Quality by Call Group

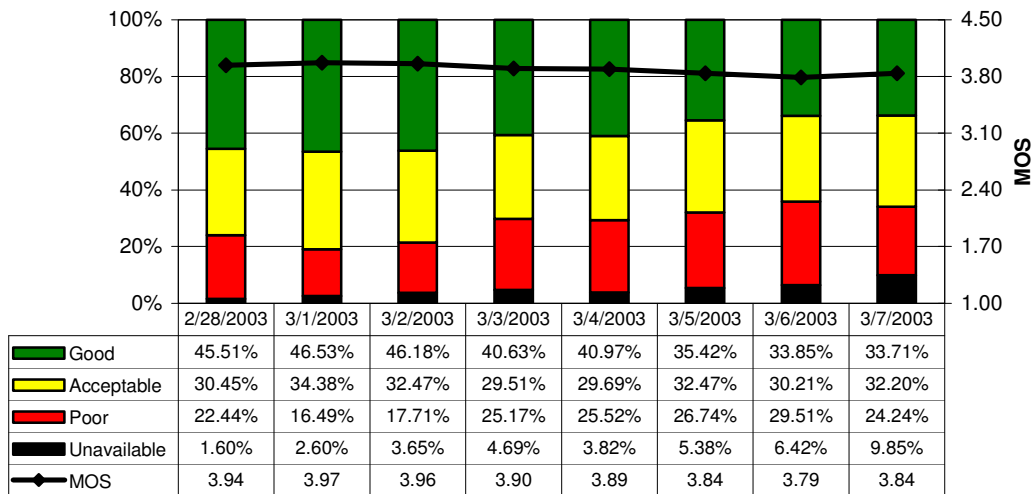


Calls by Day

Call Quality Evaluation by Day

The chart below shows each day's average MOS values with a line graph. The bar graph evaluates each day's MOS values according to the MOS result ranges defined for the assessment and shows the percentage of Good, Acceptable, Poor, and Unavailable calls.

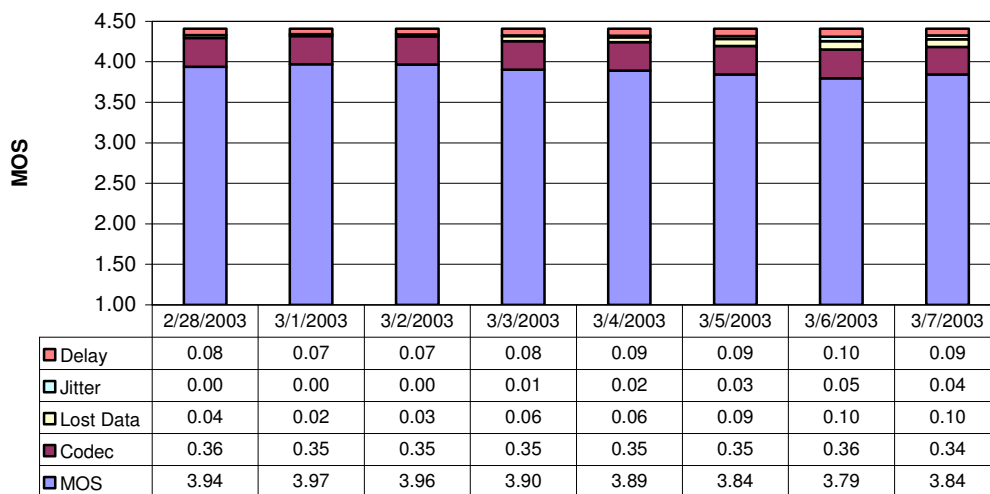
Call Quality Evaluation by Day



Factors Affecting Call Quality by Day

The chart below breaks out call quality impairment factors to show the impact of each impairment (in points subtracted from the MOS) on the overall call quality per day.

Factors Affecting Call Quality by Day

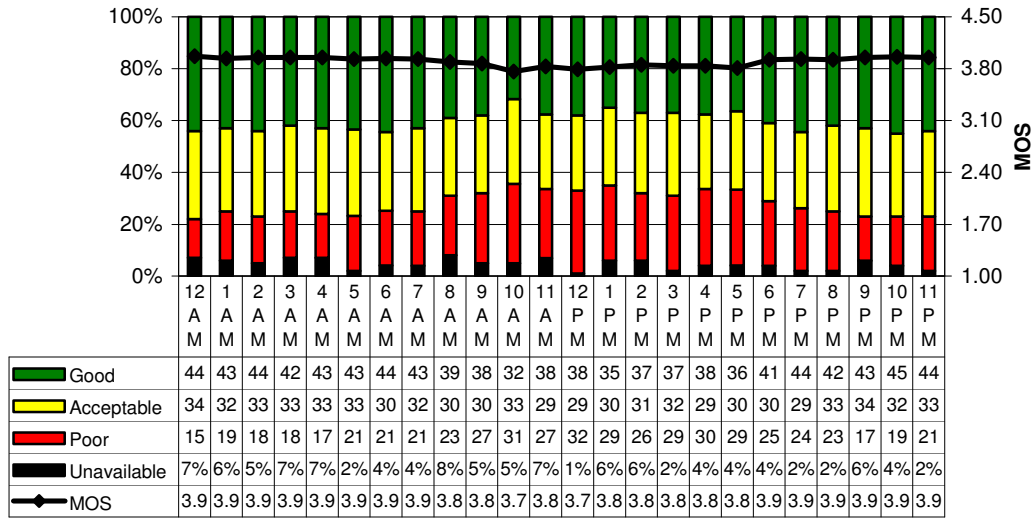


Calls by Hour

Call Quality Evaluation by Hour

The chart below shows each hour's average MOS values with a line graph. The bar graph evaluates each hour's MOS values according to the MOS result ranges defined for the assessment and shows the percentage of Good, Acceptable, Poor, and Unavailable calls.

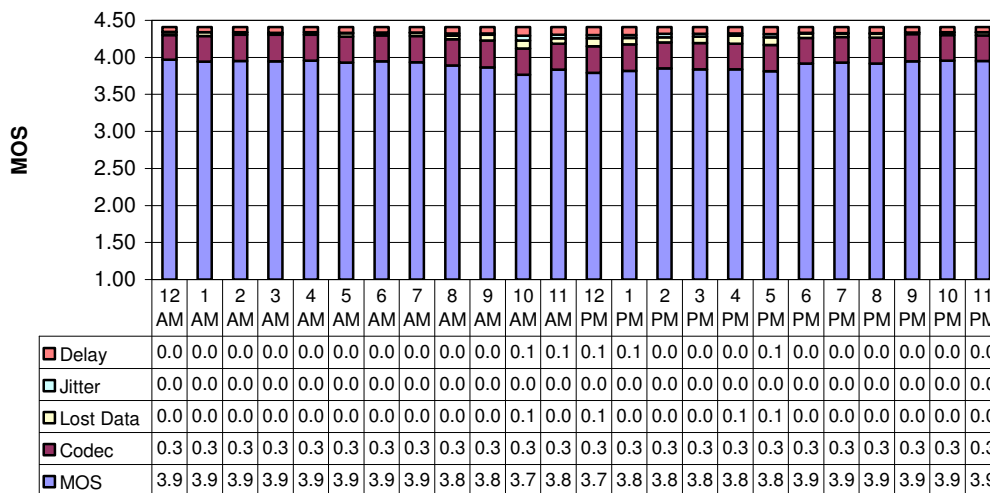
Call Quality Evaluation by Hour



Factors Affecting Call Quality by Hour

The chart below breaks out call quality impairment factors to show the impact of each impairment (in points subtracted from the MOS) on the overall call quality per hour.

Factors Affecting Call Quality by Hour



Sample Data : Summary Page

Once all testing and verification of the network is complete, a brief summary document should be developed to provide a quick reference to the current state of the network. Additionally, for easy reference, a zipped file should be created to include all documentation from the entire process.

What follows is an example of a summary document.

The final results were very positive as every network segment tested score near toll-quality or better. The following chart shows each segment, the compression algorithm, the number of simultaneous calls and the MOS score. A 4.0 is considered toll-quality.

Wireless Link	G.729a	9 Calls	4.00
Wireless + Wan	G.729a	5 Calls	3.96
*Corporate WAN	G.729a	15 Calls	4.01
*Remote1 WAN	G.729a	3 Calls	4.01

Even though the network scores are fantastic as indicated by above table, a few issues were discovered that need to be mentioned. These issues can easily affect voice/video quality in the future.

The first item is DSCP packet. The network was verified to pass and trust incoming DSCP values on all subnets except for 172.16.5.x and 172.16.15.x. This means that IP voice traffic from these subnets can not adhere to layer 3 QoS until this issue is fixed.

The second item is COS / DSCP packets. Sniffer tests were run to verify that layer 2 COS values were properly passed and were not overwriting DSCP values with mapping of some sort. Many of the subnets passed these headers correctly, but the following ones could not be verified during onsite visit:(172.6.x): 4,5,6,7,10,15,18,26,28.

Router utilization was extremely high. This is due to the massive overhead required to encrypt VoIP. At 5 calls to Mx, 15 to corporate and 3 to Remote1, all routers utilization exceeded 45%. This is very dangerous, as it takes very little additional traffic to cripple a router once this level is reached. In fact, during VoIP testing such an occurrence happen with both the Mx and Remote1 routers on a few occasions, most notable when Video conferencing was in session or if we tested more then the number of calls listed in the table above. A new router and circuit should eliminate this problem from Remote1. An introduction of a hardware accelerator at Mexico should help the problem, but it will still need to be monitored very closely.

Very strange results were obtained the first evening as 30% of calls were unavailable. However, calls there were available all scored toll-quality. The exact cause of this was never determined. It could have been a network problem as Clients' management software indicated a few outages during the evening. It could have simply been the console computer, as it locked up the next morning when assessment was stopped. It could have been an overload in calls, as we reduced all calls by 20% for the final test. The general feel, by all involved was that this was a strange occurrence, but that the final "near-perfect" test was more reality and thus discounts this first test to almost meaningless. However, this situation should be monitored closely to see if something similar happens at some time in the future.

WAN utilization reached 50% on both Mx and corporate sites at time of heavy traffic, VoIP traffic, and video conferencing. This should be monitored closely in the near future and adjusted accordingly.

Disclaimer

This document only provides suggestions on how to improve network performance. It is widely understood that there are many different ways to achieve end goals of a VoIP solution. In no way is this document claiming the suggestions made within are the only possible solutions, or even the best solution for any giving situation. All final decisions on implementation choices are the end customer's.

The accuracy of all equipment configurations and network performance is the direct responsibility of the implementation team that performs Phase III of the Network Readiness Process. The final deliverable is based on the data collection during the specified 48 hour period of the test. Should the customer make changes or add additional applications after this assessment, an additional assessment would be needed to determine toll quality voice.
