Quality of Outcome

Towards a network quality framework useful for applications, users and network operators

DOMOS

Proposed Solutions

https://datatracker.ietf.org/doc/draft-teigen-ippm-app-quality-metric-reqs/

https://datatracker.ietf.org/doc/draft-olden-ippm-qoo/

Requirements for a Network Quality Framework Useful for Applications, Users, and Operators

Objective

- To outline the essential features and attributes a network quality framework must have for various stakeholders.

Stakeholders

- Application Developers
- End-Users
- Network Operators and Vendors

Needs by Stakeholder

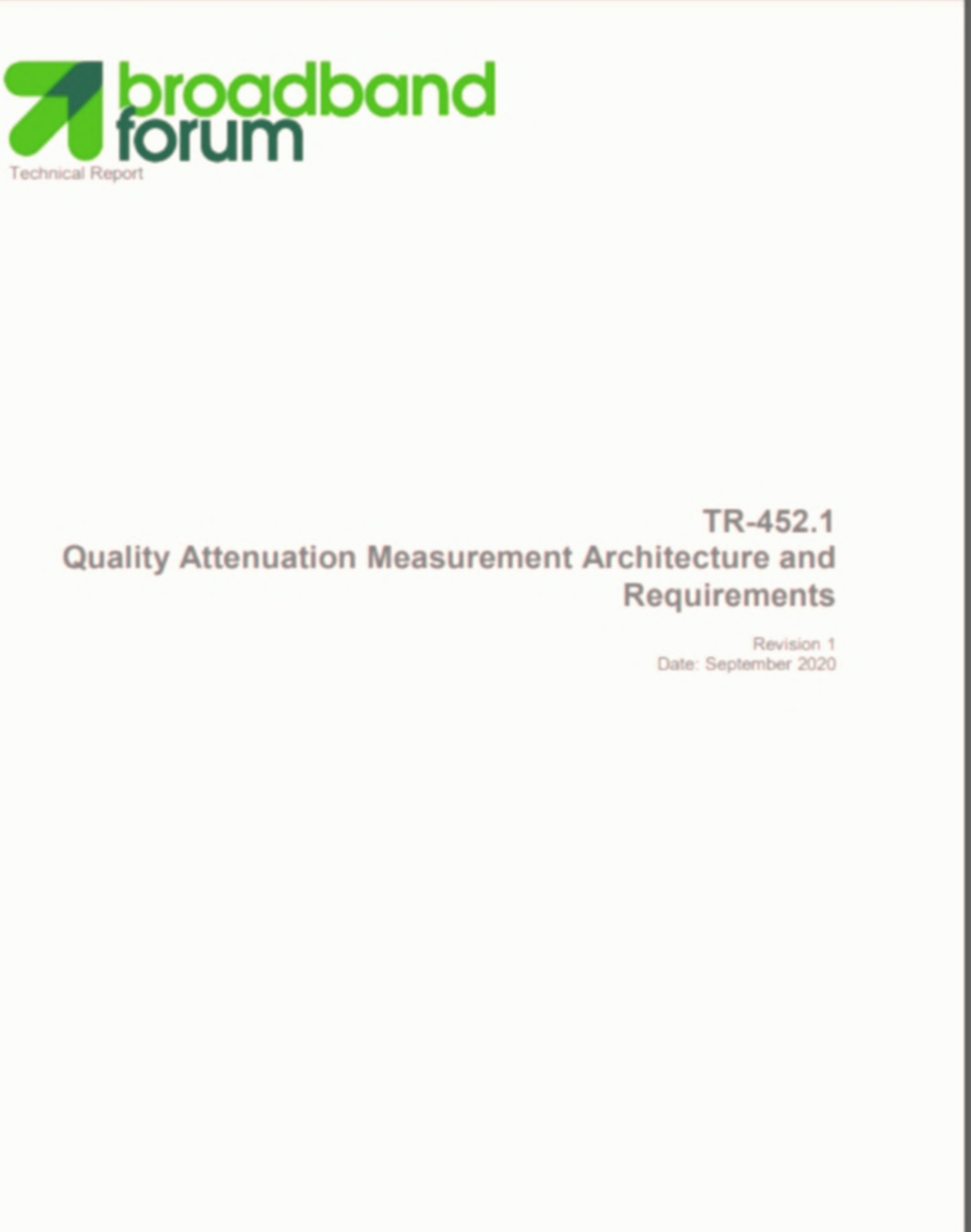
- **End-Users**: Require an understandable network metric
- **Application Developers**: Need a metric to evaluate application performance based on network conditions
- **Network Operators and Vendors**: Seek a metric for troubleshooting and network optimization

Current Limitations

- Existing frameworks often cater to only one or two stakeholder groups
- A comprehensive solution that addresses all stakeholder needs is currently lacking

Building on top of TR-452 (QED)

- Mathematical framework for network quality
- Network Quality is how latency distributes at different loads
- Captures jitter, peaks, packet loss..
- Composable
- Useful throughout the life cycle
- Can describe complex networks and requirements



Finding a middleground

Quality of Experience

MOS, NPS, gMOS, ...

Subjective, unreliable

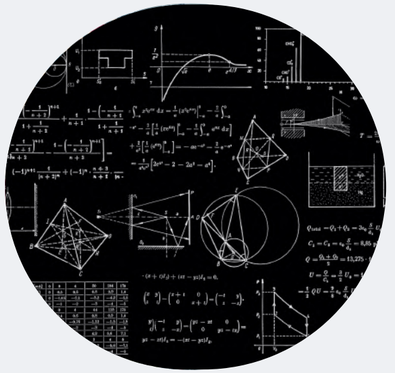
Quality of Outcome

What is the likelihood of perfect video conference?

Objective, relatable

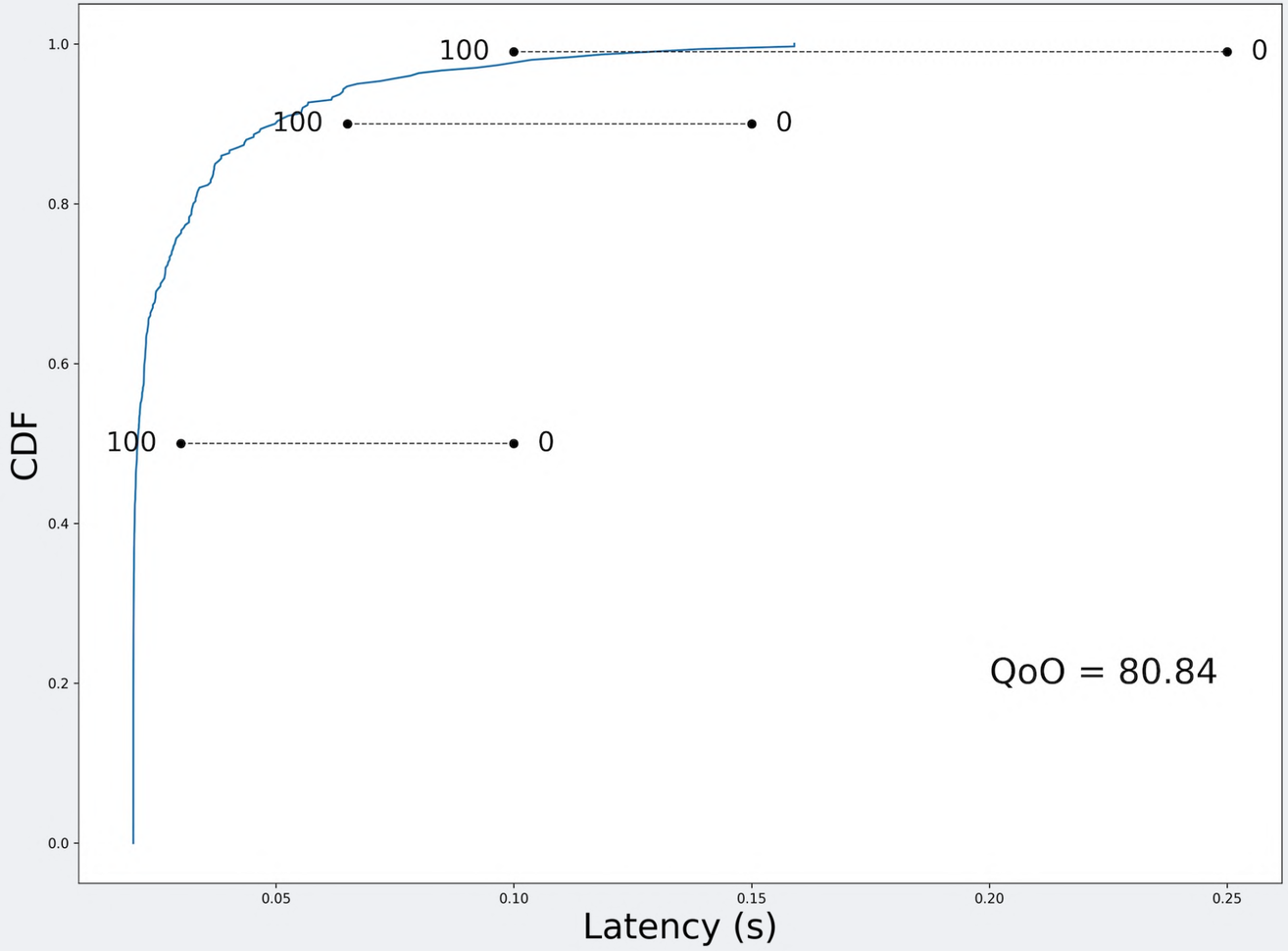
Quality of Service

Bandwidth, latency (in many forms), packet loss

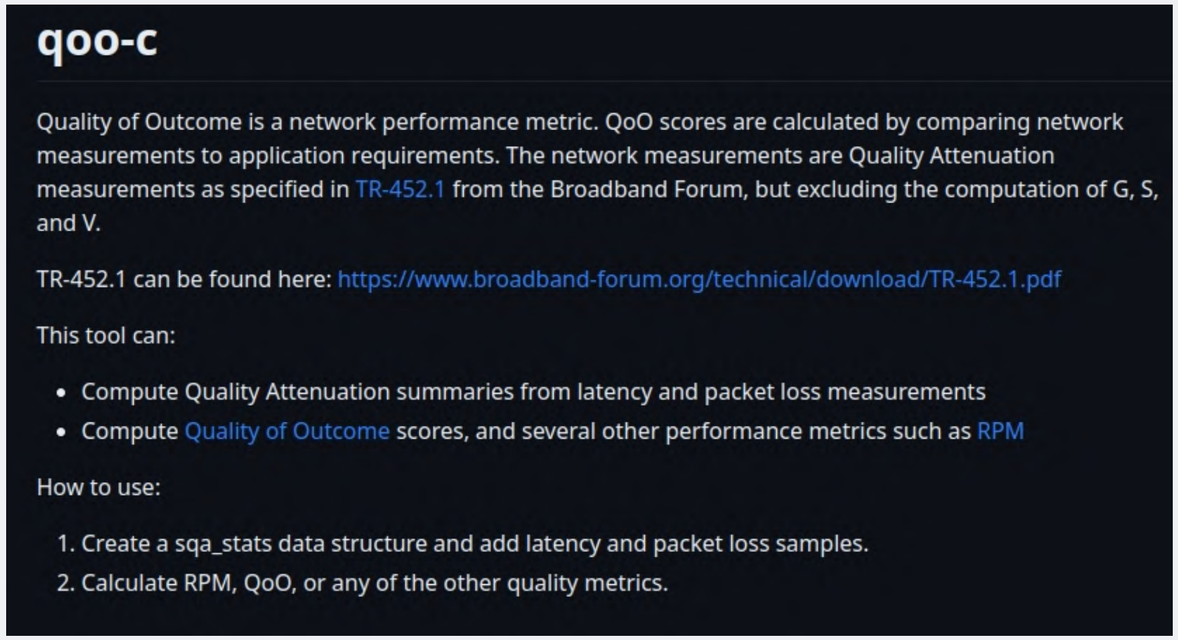


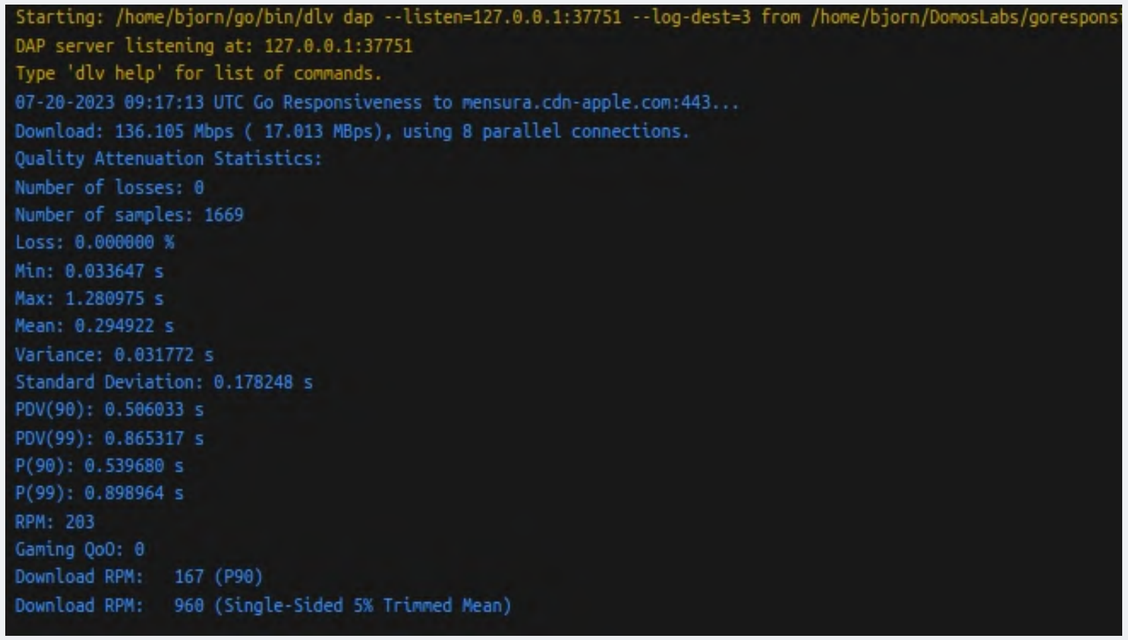
Complicated, unrelatable

Example


100
0
100
0
100
0
CDF
Latency (s)
QoO = 80.84
1.0
0.8
0.6
0.4
0.2
0.0
0.05
0.10
0.15
0.20
0.25

Implementation status





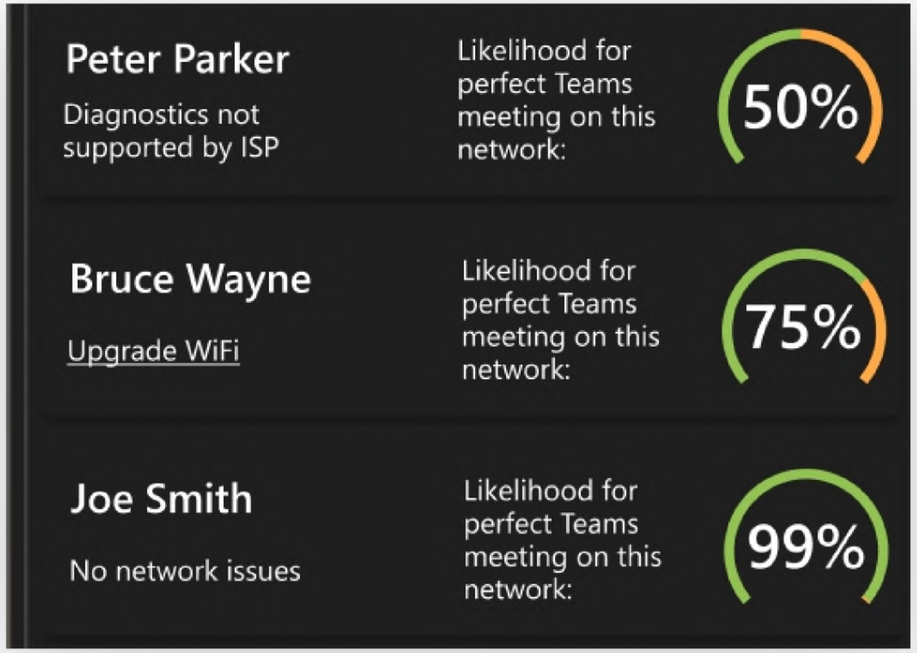
qoo-c

C library for calculating QoO scores based on latency measurements and requirements

goresponsiveness

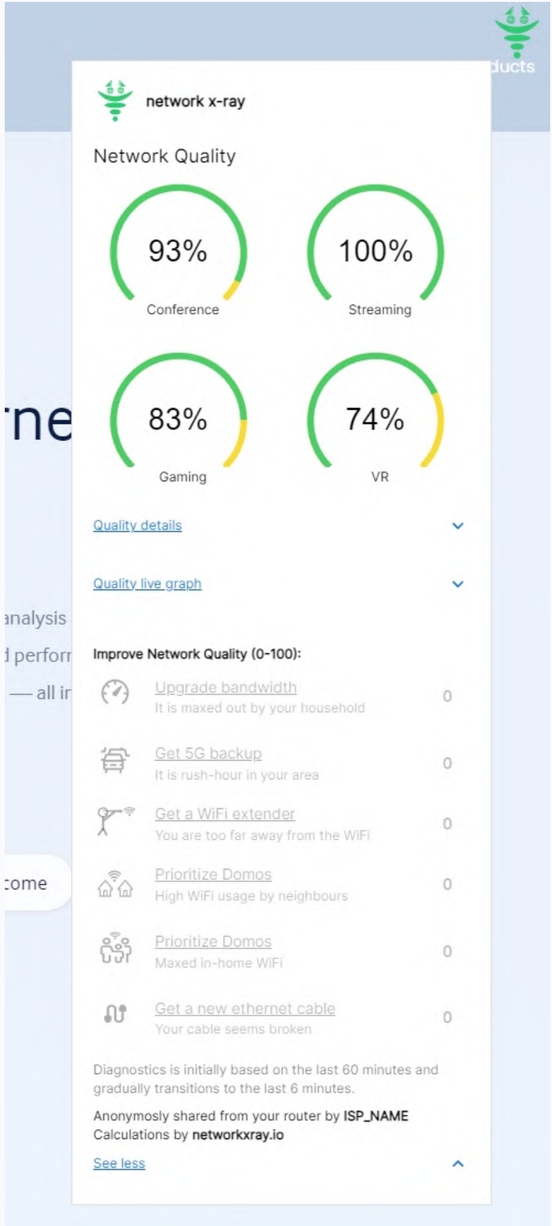
Network Quality test in Go.

Teams:



- Clear indication of network quality across the call for ALL participants
- Easily relatable: Probability of perfect experience
- Team and IT no longer in the dark where on the call the productivity issue lies

Chrome:



We propose a working group adoption call

Contributions and criticism welcome!

Thank you!

Call to Action: Get in touch and contribute!

bjorn@domos.ai
magnus@domos.ai