

# Benchmarking Broadband

## Making it meaningful

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# Setting goals

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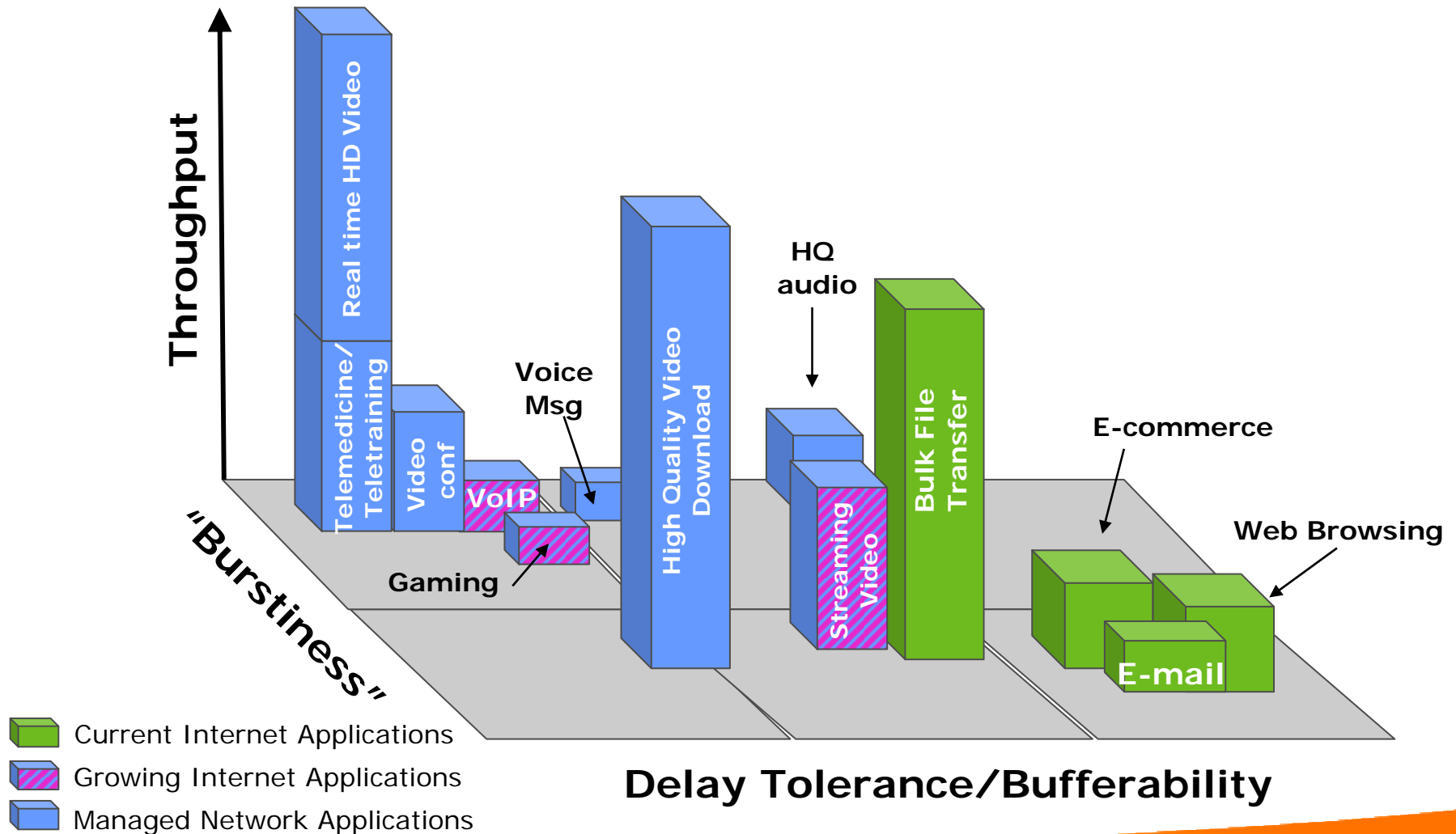
- Benchmarks must reflect accurately clear policy goals
  - Necessary to ensure relevance
  - Avoid possibly undesired consequences of “teaching to the test”
- Policy goals should be directly related to U.S. customer welfare
  - Attempting to align U.S. benchmarks with benchmarks adopted in foreign environments must be approached with great caution
- Goals should be broad and stable
  - To ensure relevance of benchmark over time
  - To avoid inaccuracies arising from excessive granularity

# Choosing specific benchmarks

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- Broadband benchmarks appear to fall into three categories:
  - Is it available?
  - How does it perform?
  - What is its price?
- Availability maybe the simplest to measure, but still has significant intricacies
  - Is service available? (yes/no)
  - Unit of geography
- Benchmarking multi-attribute aspects of broadband can be much more complex
  - Performance
  - Price

# Different IP network needs



# Measuring broadband performance

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- Performance characteristics can be very complex
  - “Speed” (up/down, max, min, time-of-day sensitivity, etc.)
  - Bandwidth (peak/off-peak, up/down, etc.)
  - Latency, packet loss and jitter (peak/off peak, etc.)
- Separate reporting of each characteristic is problematic
  - Characteristics are numerous
  - Performance is sensitive to particular customer usage patterns and is constantly varying (averages may hide important details)
- Creating an index is delicate
  - Determine appropriate weights for each performance component
  - Stability of these weights over time
- Collect indirectly through poll of customer satisfaction?

# Measuring broadband prices

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- Price has many different attributes – how you should measure it depends on your purpose for collecting it
  - Household's monthly outlay for broadband (\$/month)
  - Price of a given performance profile (\$ for  $X$  Mbps with  $Y$  GBytes of bandwidth and latency  $< Z$  milliseconds, etc.)
  - Price per unit of a particular performance characteristic (e.g., \$/GByte or \$/Mbps)
  - Attractiveness of service to price-sensitive vs. quality-sensitive customers (minimum/maximum/average price)
- Price linked to purchase of ancillary services (bundling)
  - Stand-alone price? (what if not available?)
  - Incremental price? (as component of double-play / triple-play?)
  - Total bundle price? (affordability of telecom/information/video services generally?)

# Tracking benchmark over time

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- Customer preferences change over time, often rapidly
  - Continual tradeoff between maintaining a benchmark for consistent historical record vs. to measure achievement of current customer demands
  - “Chaining” indexes together is feasible, but complex
- Key is to keep index broad in scope so that it remains relevant for a reasonably long period