

Mu Dynamics Application Quadrant #3: Understanding the Impact to Consumers and Network Operators of Different Mobile Devices Using Skype

Summary

This report describes what Consumers and Network Operators need to know about Skype and shows that:

- Skype for voice calls on a Mac (OS X) will consume at least 28% more bandwidth and network resources than an iPhone, iPad, Android phone and a PC – something consumers and operators alike should be wary of.
- Skype for instant messaging on a Mac (OS X) will consume at least 30% more network resources than an iPhone, iPad, Android phone and a PC – something operators should be wary of.
- Skype for instant messaging on an iPad will consume at least 39% more bandwidth than an iPhone, Android phone, MacBook and a PC – something consumers should be wary of.

Introduction

In the second Mu Dynamics Application Quadrant report, we focused exclusively on the Netflix service to analyze whether the client device and operating system makes a difference on the impact to consumers and network operators. In this third edition we are doing the same analysis, but for the Skype service with voice calls and instant messaging.

With 170 million connected users and over 207 billion minutes of voice and video conversations in 2010, Skype today has over 30 million users online at peak times. According to Sandvine's Global Internet Phenomena Report, Spring 2011, Skype ranks third in North America by peak period fixed access upstream application traffic by bytes.

We tested popular endpoints including the iPad, iPhone, Android (Sprint Nexus S 4G), MacBook (Mac OS X) and PC (Windows 7). The comparisons looked across two dimensions:

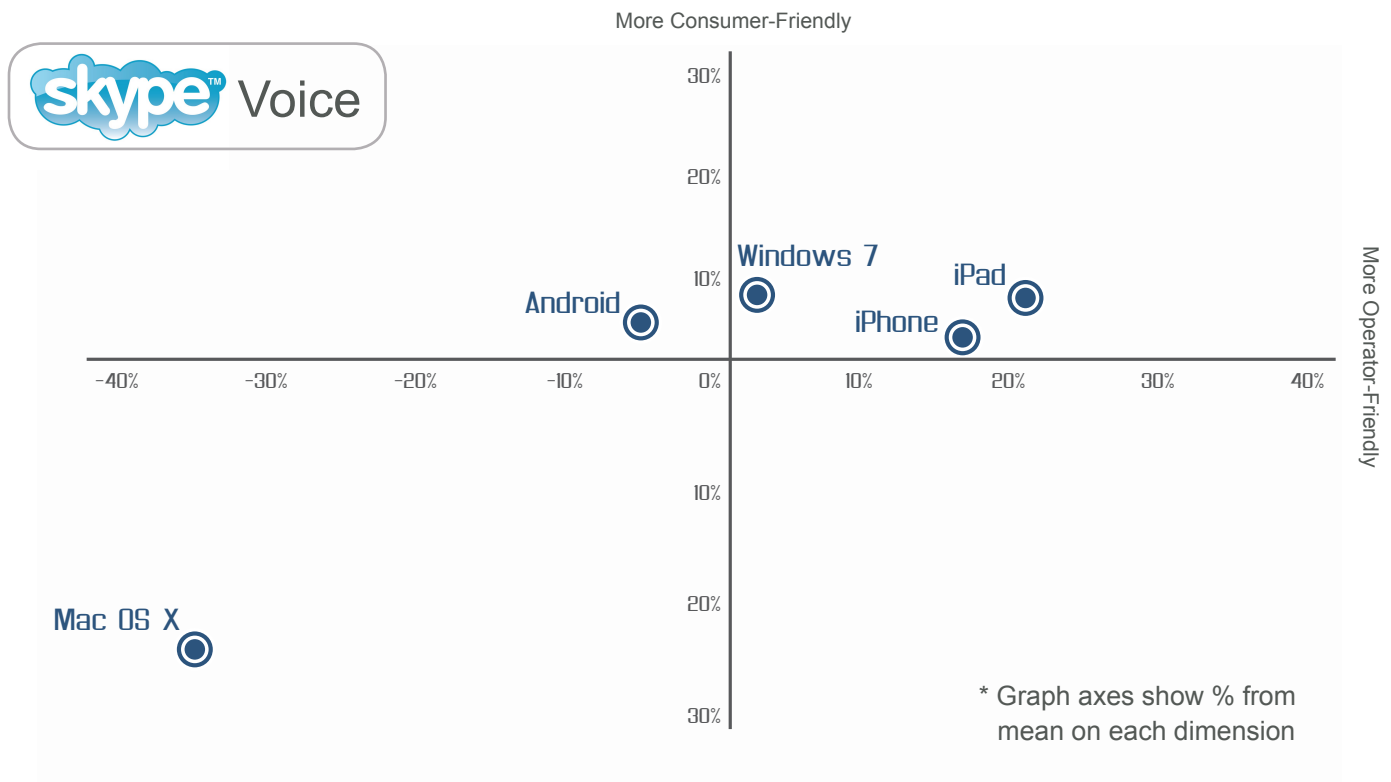
- **Consumer-friendliness:** The less bandwidth an application consumes, the more Consumer-friendly it is, especially as usage-based pricing models are becoming commonplace.
- **Operator-friendliness:** The fewer connections established by an application within a given session, the more Operator-friendly it is as fewer resources are consumed across the network.

Key Findings

The following findings were observed for voice calls:

Relative to the other endpoints, the Skype voice application on:

- a. The MacBook is by far the least Consumer-friendly and the least Operator-friendly
- b. The iPad and iPhone are the most Operator-friendly
- c. Windows 7 is the most Consumer-friendly

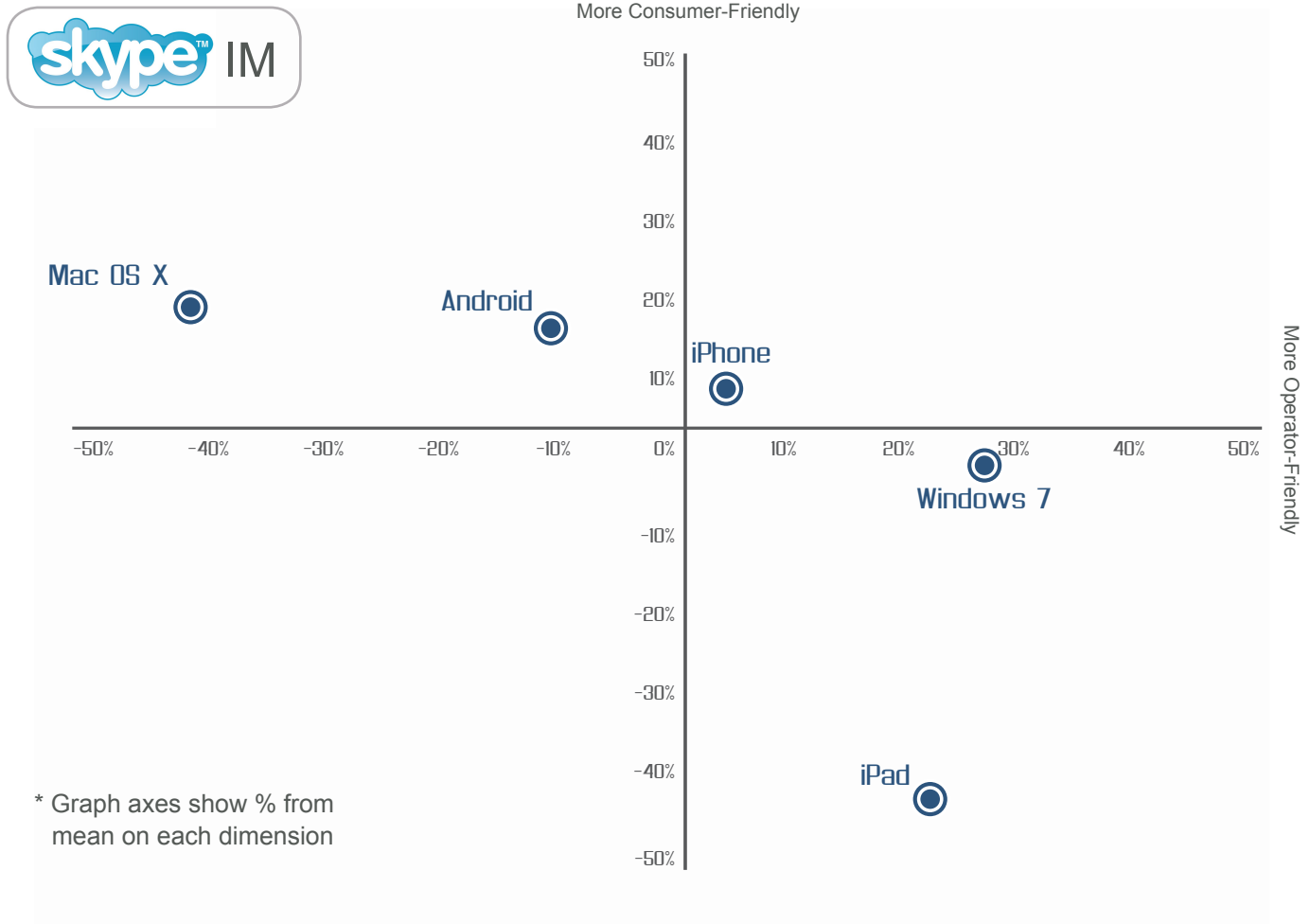


Key Findings (continued)

The following findings were observed for instant messaging chats:

Relative to the other endpoints, the Skype IM application on:

- a. Windows 7 is the most Operator-friendly
- b. The iPad is the least Consumer-friendly
- c. The MacBook is the most Consumer-friendly, but the least Operator-friendly



Methodology

All comparisons were based on multiple measurements.

- Five samples were taken for each endpoint with the same pre-recorded voice stream using Skype's Sound Test Service.
- All endpoints were connected to the same wireless LAN and operated under the same local network conditions.
- The most recent Skype client app available at the time was installed on all the devices.
- The same queries were run to extract data from each sample regarding flows and connections per second, as well as data transfer rates (bytes per second).

The collected data was then normalized to establish a common scale:

- All the data points were averaged to yield a common value for each of the five endpoints.
- The endpoint values were averaged along the X axis (connection rate) and the Y axis (bytes/second) to yield the X average and Y average for the five endpoints.
- Finally, each endpoint was represented as the percentage deviation from the average. It is these deviations were plotted on a scale that had X average and Y average as (0,0).

About Mu Dynamics

Mu Dynamics is the leading provider of testing solutions ensuring the performance and security of both applications and network infrastructure. The company's innovative solutions enable customers to confidently meet the challenges posed by today's rapidly changing networks. This includes the ever-growing number of applications and devices on the network, and the swift transition to mobile, virtual and cloud environments. Hundreds of service providers, enterprises, application developers and network equipment manufacturers count on its purpose-built testing solutions, such as Mu Studio Performance and Mu Studio Security, to ensure their applications and networks are scalable and secure. Mu Dynamics is headquartered in Sunnyvale, California.



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