Wi-Fi Cost Index

The Impact of Mobility Costs to Your Organization

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Executive Summary

Today's organizations face a tough dilemma when it comes to mobility. On one hand, the smartphones, tablets, and laptops that mobile workers carry with them have proven very effective for increasing employee productivity. Over 55% of mobile employees report that they work at least 10 hours more a week because these mobile devices allow them to work when and where they choose[1].

However, with that added productivity comes both added complexity and added costs as organizations struggle to manage an increasing number of mobile devices, mobile applications, and mobile workers. While "bring-your-own-device" (BYOD) programs have freed some IT organizations from having to directly manage and pay for smartphones and tablets as employees choose their own preferred devices, many organizations still allow users to expense back the cost of mobility when they use these devices for work. This in itself adds to the complexity and costs of mobility, as some costs will be centrally managed, and others will get pushed to individual departments, making it almost impossible to account for the actual overall cost to the organization.

The reality is that mobility costs are very significant. A single trip could see a mobile employee incur costs across multiple devices that require domestic mobile broadband data subscriptions, international mobile data subscriptions, international roaming charges, and Wi-Fi day passes at multiple venues and at different rates.

Mobile workers themselves are often aware of the costs they generate: 43% of mobile employees report receiving an expensive data roaming bill in the past year, and that doesn't include the 17% who report never seeing their bill because the employer directly pays for it[2].

As the global Wi-Fi leader and provider of the world's largest commercial Wi-Fi network, iPass conducts original market research on costs and trends in mobility, in order to provide objective information to our enterprise customers and service provider partners on the true impact of mobility to their organizations.

The Wi-Fi Cost Index provides average Wi-Fi and mobile broadband data costs by region. This report not only provides insight into those costs, but also shows the impact of those costs by looking at real-world travel scenarios for business travelers, and the impact of that usage to an organization's bottom line.

Two Travel Scenarios: Cost Impact Based on a Heavy Data User

Many of an organization's mobility costs are incurred by the business users who are most likely to travel often and across country borders. These could be regional sales representatives, executives for a multinational organization, or senior managers with teams across different geographies.

In this report we've outlined two travel scenarios:

- US-based user traveling internationally
- Europe-based user traveling within Europe and internationally

Since the amount of data used has a larger potential cost impact on users' smartphone and/or tablet usage, this model tracks data consumed per day for those devices. For laptops, however, the model assumes that there is no data usage impact, just the cost of purchasing Wi-Fi day passes.

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[1]. *Q3 2012 iPass Mobile Workforce Report (mobile-workforce-project.ipass.com/).*
[2]. *Ibid.*

The model also defines typical daily usage behavior for these heavy users who have the biggest impact on organizational mobility cost.

Smartphone or Tablet Usage: Heavy Usage per Day in Megabytes (MBs)

Activity	MBs per Day
Checking Email	2.0
Web Browsing	5.0
Presentation Downloads (2 files)	8.0
Document Access (2 files)	0.4
Audio Streaming (1 hour)	70.0
Skype Call (10 minutes)	300.0
Total:	385.4

Note that this model assumes data usage from a single device and a single data plan. Per-day data usage is calculated leveraging the data usage assumptions included in the Reference Data section at the end of this report.

Based on these assumptions, this report models the cost to the organization for each of the two travel scenarios, as well as how long it will take the user to exceed data plan caps.

Scenario One: Mobility Cost Impact of a US-Based Traveler

The first scenario considers a mobile worker who is based in the United States and who travels both domestically and internationally. It assumes that this user is traveling with a laptop and a smartphone or tablet, and that for his laptop he is purchasing Wi-Fi day passes for access. On his smartphone or tablet the assumption is that he is using a domestic data plan, and when traveling overseas he is using an international data plan. Since unlimited data plans are increasingly rare, this model assumes a 5 GB per month cap on the domestic data plan and a 1 GB per month cap on the international data plan.

What is the cost impact of this traveling user? Here we have detailed four possible use cases:

1. **In-plan domestic data usage** (user doesn't travel outside of the US and stays within the current plan limit of 5 GB per month)

2. **Out-of-plan domestic data usage** (user doesn't travel outside of the US, but has exceeded the domestic data plan cap of 5 GB per month)

3. **In-plan international data usage** (user is traveling outside of the US and is within the 1 GB data plan cap, assuming the user has elected to purchase an international data plan add-on)

4. **Out-of-plan international data usage** (user is traveling outside of the US and has exceeded the 1 GB data plan cap, or has neglected to purchase an international data plan add-on)

Smartphone/Tablet Data Cost[3]	Per MB Cost	Per Day Cost
Cost for Domestic Data Usage	$ 0.014	$ 5.40
Cost for Domestic Data Usage (out of plan)	$ 0.04	$ 15.42
Cost for International Data Usage	$ 0.25	$ 96.35
Cost for Roaming (out of plan)	$ 5.13	$ 1,977.10

[3.] *Average costs for US-based service providers are based on the assumption the user has a 5 GB domestic data plan and a 1 GB international data plan. Per-megabyte costs are calculated by taking the total plan limit for the month divided by the average monthly cost.*

For the user's laptop, Wi-Fi is typically not offered based on data used, but instead is offered as hourly or daily flat rate passes. The cost of these passes will vary based on the user's location. Inside the US, Wi-Fi day plan costs are much lower than outside of the US.

Laptop Data Cost	Per Day Cost
US Day Pass	$ 10.31
Asia Day Pass	$ 15.51
Europe Day Pass	$ 21.58

Adding the costs together shows the total impact of mobility costs for mobile professionals.

Total Smartphone/Tablet/Laptop Cost	Per Day Cost
Cost for Domestic Data Usage	$ 15.71
Cost for Domestic Data Usage (out of plan)	$ 25.73
Cost for International Data Usage	$ 117.93 (Europe) $ 111.86 (Asia)
Cost for Roaming (out of plan)	$ 1,998.68 (Europe) $ 1,992.61 (Asia)

The cost impact for mobile professionals adds up quickly when the user travels outside of her home country but within the EU, as well as when the user travels outside of the EU. Even with the purchase of an international data plan a mobile worker can exceed $100 per day, on average, in mobility costs. If the user exceeds that international data plan or, worse, doesn't purchase one, then the costs really escalate, with the potential to exceed $2,000 per day.

Scenario Two: Mobility Cost Impact of a Europe-Based Traveler

The second scenario considers a mobile worker who is based in Europe and who travels both within and outside of the European Union. It assumes that this user is traveling with a laptop and a smartphone or tablet, and that for her laptop she is purchasing Wi-Fi day passes for access. For her smartphone or tablet the assumption is that she is using a domestic data plan that covers usage for her home country as well as when traveling within the EU; and when traveling outside of the EU she is using an international data plan. Since unlimited data plans are increasingly rare, this model assumes a 5 GB per month cap on the domestic data plan and a 1 GB per month cap on the international data plan.

What is the cost impact of this traveling user? Here we have detailed four possible use cases:

1. **In-plan domestic data usage** (user doesn't travel outside of the home country and stays within the current plan limit of 5 GB per month)

2. **In-plan EU data usage** (user travels outside of the home country but also travels within the EU)

   - It is worth noting that EU legislation mandates that European service providers can charge a maximum of 0.70 Euros (~$0.90) per megabyte for roaming within the EU as of July 2012. It remains to be seen what impact this will have on domestic data costs within Europe (not crossing a European border) or if international data roaming outside of Europe will see any cost increases as a result. For the purpose of this analysis it is assumed that the service provider will charge the mobile worker the full $0.90 while traveling outside of the home country but still within the EU.

3. **In-plan international data usage** (user is traveling outside of the EU and is within the 1 GB data plan cap, assuming the user has elected to purchase an international data plan add-on)

4. **Out-of-plan international data usage** (user is traveling outside of the EU and has exceeded the 1 GB data plan cap, or has neglected to purchase an international data plan add-on)

Smartphone/Tablet Data Cost[4]	Per MB Cost	Per Day Cost
Cost for Domestic Data Usage (inside home country)	$ 0.03	$ 11.56
Cost for Domestic Data Usage (within EU)	$ 0.90	$ 346.86
Cost for International Data Usage (outside of EU)	$ 0.35	$ 134.89
Cost for Roaming (outside of EU, out of plan)	$ 5.94	$ 2,289.28

For the user's laptop, Wi-Fi is typically not offered based on data used, but is usually offered as hourly or daily flat rate passes. The cost of these passes varies based on the user's location.

Laptop Data Cost	Per Day Cost
Europe Day Pass	$ 21.58
US Day Pass	$ 10.31
Asia Day Pass	$ 15.51

Adding the costs together paints the picture of the total impact of mobility costs for mobile professionals.

Total Smartphone/Tablet/Laptop Costs	Per Day Cost
Cost for Domestic Data Usage (inside home country)	$ 33.14
Cost for Domestic Data Usage (within EU)	$ 368.44
Cost for International Data Usage (outside of EU)	$ 145.20 (US) $ 150.40 (Asia)
Cost for Roaming (outside of EU, out of plan)	$ 2,281.64 (US) $ 2,304.79 (Asia)

The cost impact for mobile professionals adds up quickly when the user travels outside of her home country but within the EU, as well as when the user travels outside of the EU. Even with the purchase of an international data plan a mobile worker can exceed $100 per day, on average, in mobility costs. If the user exceeds that international data plan or, worse, doesn't purchase one, then the costs really escalate, with the potential to exceed $2,000 per day.

[4.] *Average costs for Europe-based service providers are based on the assumption the user has a 5 GB domestic data plan and a 1 GB international data plan. Per-megabyte costs are calculated by taking the total plan limit for the month divided by the average monthly cost.*

Heavy Data User Summary

How likely is a user to exceed his data plan based on the usage patterns described for the two scenarios above? Based on the usage for either scenario, these mobile workers will need only 13 days of data usage to exceed their domestic data plan, and 2.6 days to exceed their data plan while traveling abroad.

Number of Days User Has without Exceeding Plan Caps	
Domestic	12.97 Days
International	2.6 Days

The user can mitigate this expense by changing her behavior, or by using Wi-Fi day passes when available. However, as shown above, Wi-Fi pass usage has a separate daily cost that must be taken into consideration. Also, Wi-Fi day passes are often sold per device, meaning if the user has already purchased a day pass for his laptop, then he would also need to purchase a separate day pass for his smartphone or tablet.

It's clear that many users are incurring international data roaming bills as well as exceeding their domestic data plans. Four out of 10 mobile workers have received what they thought to be an overly expensive data roaming bill in the last year.[5] And while mobile workers report a greater level of productivity than non-mobile workers, that productivity advantage clearly can come at a cost.

An Alternative Approach to Mobility

In the face of this data, it's clear that enterprises must find an alternative that delivers the productivity advantages of mobility and:

- Controls costs and makes them more predictable for all mobile workers, especially for those travelers who are the heaviest users and who have the biggest impact on cost
- Enables connectivity around the world
- Simplifies the user's experience
- Supports a range of devices and platforms

That is where iPass can provide value to organizations that support mobile workers. With the explosion of smartphones and tablets in the organization, and with the growing bring-your-own-device (BYOD) trend, organizations recognize the benefits of supporting mobility. But devices are cheap—it's networks that are expensive. iPass gives enterprises the ability to let business travelers "bring your own network"—we call this BYON!

By providing the world's largest commercial Wi-Fi network and trusted connectivity platform, iPass allows mobile workers to bring their own Wi-Fi network wherever they need to work. The iPass Mobile Network provides these business travelers with aggregated access to hundreds of different Wi-Fi providers, with far more hotels, airports, and business venues than any other network, all with a single secure login.

[5.] *Q3 2012 iPass Mobile Workforce Report (mobile-workforce-project.ipass.com/).*

Potential Cost Savings

iPass provides several different pricing options that enable organizations to take advantage of the iPass Mobile Network. Using typical pricing scenarios, organizations can save between 46% and 99% on daily mobility costs by leveraging the iPass Mobile Network, allowing users with multiple devices to access Wi-Fi as an alternative to purchasing Wi-Fi day passes and using mobile broadband 3G/4G networks.

Scenario One: iPass Cost Savings for a US-Based Traveler

Total Smartphone/Tablet/Laptop Costs	Per Day Cost	Reduction in Cost Using iPass
Cost for Domestic Data Usage	$ 15.71	62%
Cost for Domestic Data Usage (out of plan)	$ 25.73	77%
Cost for International Data Usage	$ 117.93 (Europe) $ 111.86 (Asia)	84%
Cost for Roaming (out of plan)	$1,998.68 (Europe) $1,992.61 (Asia)	99%

Scenario Two: iPass Cost Savings for a Europe-Based Traveler

Total Smartphone/Tablet/Laptop Costs	Per Day Cost	Reduction in Cost Using iPass
Cost for Domestic Data Usage (inside home country)	$ 33.14	45%
Cost for Domestic Data Usage (within EU)	$ 368.44	95%
Cost for International Data Usage (outside of EU)	$ 145.20 (US) $ 150.40 (Asia)	96%
Cost for Roaming (outside of EU, out of plan)	$ 2,281.64 (US) $ 2,304.79 (Asia)	99.7%

The actual mobility cost savings an organization would realize depends on several factors, such as the data consumption behavior of business travelers, the types of data usage plans provided to mobile workers, and the number of devices with which a user travels. Savings would also be impacted by how the organization manages the costs of IT-managed devices as well as BYOD programs that are in place.

Regardless of these factors, leveraging the iPass Mobile Network will save significantly on the mobility costs that organizations face in supporting their mobile workforce. Not only will costs go down, but users benefit from an easy-to-use connectivity platform that greatly simplifies the mobility experience. And organizations benefit from multiple cost and security control options.

iPass offers organizations a way to get detailed insight into their potential cost savings from the iPass "BYON" approach. Visit the Mobility Cost Savings Calculator located at www.ipass.com/resource-center/roi/. By entering assumptions about your employees' mobile usage behavior, you can model your savings, in USD and other currencies.

Wi-Fi Cost Index: Reference Data

In developing the Wi-Fi Cost Index, iPass researched the costs of Wi-Fi day passes by region by contacting hundreds of different business-relevant hotels and airports to capture their hourly and daily Wi-Fi rates.
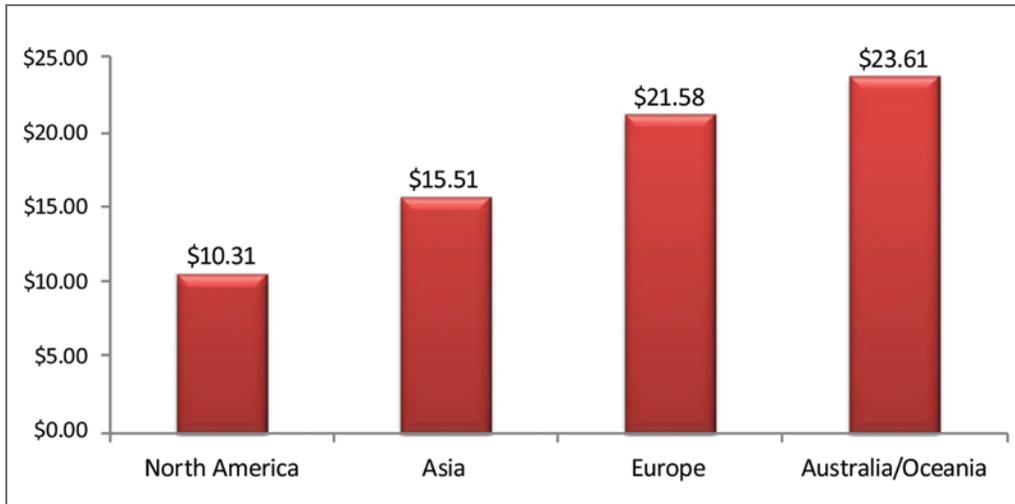

Figure 1: Wi-Fi Day Pass Costs by Region (as of July 2012)

iPass also worked with a third-party-analyst firm to capture average data usage for common tasks on a smartphone and/or tablet in order to establish a scenario for daily megabyte (MB) usage.

Activity	Size	Midpoint
Presentation Download (per file)	3–5 MB	4.0
Word Docs / PDFs (per file)	0.1–0.3 MB	0.2
Email: Smartphone (per day)	1–3 MB	2.0
Email: Laptop (per day)	8–12 MB	10.0
WebEx (per 60 minutes)	2–3 MB	2.5
Skype Call (per minute)	30 MB	30.0
Movie (per 120 minutes)	800–1,200 MB	1,000.0
Video Streaming (per 60 minutes)	300–400 MB	350.0
Audio Streaming (per 60 minutes)	60–80 MB	70.0
Web Browsing (laptop per 60 minutes	15–20 MB	17.5
Downloading Movies; iTunes	1,500–4,000 MB	2,750.0

Figure 2: Daily MB Usage

Along with tracking Wi-Fi costs by region, iPass also analyzed mobile broadband 3G/4G data costs by looking at the different pricing plans by service provider and averaging the costs by region. The cost difference between a "heavy" user and a "light" user measures the high- and low-end price points that service providers offer with their data plans. These high/low ends reflect the progressively less expensive per-megabyte pricing that corresponds with price plans with higher data usage limits.

	Domestic Data	Domestic Data Overage (out of plan)	International Data (in plan)	Roaming (out of plan)
US Traveler Smartphone User (heavy)	$ 0.014	$ 0.04	$ 0.25	$ 5.13
US Traveler Smartphone User (light)	$ 0.24	$ 0.04	$ 0.37	$ 5.13
European Traveler within Europe (heavy)	$ 0.03	$ 0.90[6]	$ 0.35	$ 0.90[6]
European Traveler within Europe (light)	$ 0.15	$ 0.90[6]	$ 0.57	$ 0.90[6]
European Traveler to US				$ 5.94

Figure 3: Mobile Broadband Data Rates (as of April 2012)

[6.] *European Union legislation mandates that service providers can charge a maximum of 0.70 Euros (~$0.90) per megabyte for roaming (out of plan) within the European Union as of July 2012. It remains to be seen what impact this will have on domestic data within Europe (not crossing a European border) or if international data roaming outside of Europe will see any cost increases as a result.*

About iPass

Wi-Fi is the connection of choice. 3G is congested and slow; 4G is expensive and hard to find; roaming costs are prohibitive; mobile services are moving into the cloud. And Wi-Fi is exploding, fueled by massive growth in public and private hotspots. All smartphones and tablets now ship with Wi-Fi capability. And it's projected that Wi-Fi will handle 46% of IP traffic by 2015.

Yet accessing a Wi-Fi hotspot is often frustrating—so-called "free" Wi-Fi is riddled with performance issues. Enterprises can't afford to have unproductive business travelers. And carriers urgently need new revenue opportunities, lower costs, and must deliver a great customer experience. There is a pressing need for a global Wi-Fi network and trusted connectivity platform.

- Unmatched footprint: As the Wi-Fi market maker, only iPass can make you globally mobile. iPass delivers the world's largest commercial Wi-Fi network, with far more hotels, airports, and business venues than any other network. Our trusted connectivity platform increases control and reduces the cost of mobility. Our Wi-Fi footprint is 50% larger than any other network.

- Unmatched platform: iPass Open Mobile, our cloud-based mobility platform, provides a lightweight, always-on universal connection manager for seamless connectivity, while ensuring that security and cost policies are enforced.

- Unmatched global authentication fabric: iPass Open Mobile Exchange helps mobile service providers capture new revenues in the rapidly growing Wi-Fi market while dramatically improving the economics of service delivery.

So users are globally mobile, with easy, seamless connectivity. Founded in 1996 and headquartered in Redwood Shores, California, iPass (NASDAQ: IPAS) is setting the world on Wi-Fi. You get more network with less work wherever you roam. Learn more at www.ipass.com.

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