

Executive Summary

Today more than ever, connectivity is king. People need to be connected. Whether for work, play or time with the family there is a real need to be “always on.” And with the continued growth in cloud applications and unified communications, high quality and secure connectivity is no longer a nice-to-have but a must-have.

But what connectivity options do business travelers have? Which of these options is going to be cost effective while ensuring optimal productivity and security? These are the questions Rethink looked to answer in this paper. Using desk-based research methods we built an understanding of whether free Wi-Fi hotspots really are a cost-free connectivity option and whether the erosion of data pricing in 4G LTE bundles makes cellular data roaming a viable option. These options were compared to the costs of using paid-for Wi-Fi in venues such as hotels, airports and airplanes as well as the cost of monthly Wi-Fi subscription services.

Our findings are clear. Free Wi-Fi does not provide the simplicity, convenience and security that today’s business travelers require. Furthermore, when you consider the impact on worker productivity the notion of free quickly disappears. Although the costs of cellular roaming in Europe have reduced, they remain substantial and will be with us for a few years yet; and for anyone travelling outside of Europe the costs are still sky high. Piecemeal payment for Wi-Fi becomes expensive very fast, without delivering the simplicity and convenience that business users crave. The clear winner was Wi-Fi subscription services, such as those from iPass, where for a set monthly fee you gain unlimited access to high quality, secure Wi-Fi hotspots around the globe.

The Connectivity Options

After researching business traveler data consumption patterns and respective costs we have concluded there are 4 options:

- A) Predominantly cellular solution
 - B) Buy Wi-Fi on demand as you need it
 - C) Free Wi-Fi
 - D) Paid Wi-Fi subscription service
- A) Predominately cellular: This works well with a smartphone and typically when traveling within your home country. For example, the US employee traveling across the US can use their smartphone with little to no hassle. The cost is predicated on the package that has been purchased. However, when that individual travels outside the US there are new costs due to data and voice roaming. Therefore the business traveler will need to find alternative offerings to ensure that all the devices are connected. MiFi is one way to solve this challenge. This means that the individual will purchase a MiFi device and another, different service package. And of course there is free Wi-Fi that can be added on top. Yet we have found that free Wi-Fi does come with a cost. This cost can come from a range of items, such as security and privacy risks, timed services, ads or other inefficiencies that come with a free service.
- B) Buy Wi-Fi on demand as you need it: Purchasing Wi-Fi when you need it also presents some challenges. Having to continuously create profiles and log into new Wi-Fi services with your name, password and credit card number is inefficient and can be quite expensive. It is hard to keep track of this when traveling. The primary goal is to stay connected so tracking credit card swipes is not top of mind.
- C) Opting into free Wi-Fi: While an option, there are new challenges with this approach. There are usually obstacles that cause free Wi-Fi to be inefficient and really not free. There are instances where you get “free” Wi-Fi but it is limited to only certain activities; if you want to have a “premium” experience, inevitably you will need to pay. As mentioned before there are other risks with free Wi-Fi, such as security and privacy concerns.
- D) Purchasing a Wi-Fi service: This is something to consider to compliment the cellular package. In this case there is a predictable outcome. By taking a Wi-Fi first approach, connectivity can be affordable and deliver the quality of service needed to keep productive and “always on”. When considering a Wi-Fi service it is important to find one that is global, easy to install, “always on” and priced for an unlimited approach. Look for those that you can use across all devices. This could be the best approach for total cost of “always on” connectivity.

Average Data Usage

Nothing ever stands still. For instance, take the “See Europe on \$5 a day” books written by Arthur Frommer. Today his favorite Paris hotel charges \$112 a night for its smallest room. This analogy applies to staying connected. Business travelers today have a laptop, a tablet and a smartphone, and the average amount of data they need across all 3 of them is increasing. Why? Simply put, we are doing more work on the road and we are using applications that have become increasingly bandwidth hungry.

Our desk-based research has allowed us to profile the typical daily data usage of a business traveler. We looked at the applications they use while on the road and thresholds like how many emails do executives deal with each day; how many times do they need to look things up in enterprise software; what are their unified communication usage patterns; and how much social media do they use?

Our research demonstrates that the data requirement for a business traveler has increased to 760 MB of data per day; that is 4 times greater than just a few years ago. The table below depicts the different activities of a typical business traveler and their average data usage per task.

Average Data Usage for a Business Traveler in 2015

Activity	MB per day
Checking email	12 MB
Web browsing	29.25 MB
LinkedIn lookups	9.75 MB
Travel apps – Uber/Avis	5.85 MB
Cloud calendar/Notes	5.85 MB
VPN apps – CRM, SAP	17.55 MB
Downloading presentations	7 MB
Voice Over Wi-Fi	7.2 MB
GPS map data	10 MB
Skype to mobile calls	225 MB
Skype or other video conference	337 MB
Webex or GoToMeeting	67.5 MB
Facebook	8 MB
Instagram	16 MB
What’sApp	1.5 MB
Total	759.45 MB per day

We were surprised to see the fourfold increase. However, upon deeper analysis the numbers are logical. The increases are driven by several factors:

- 1) Email is not just text but includes presentations, video, podcasts, images, etc.
- 2) Cloud applications are more prevalent and used as critical business tools – e.g. CRM, Unified Communications, Gmail, Dropbox, CubeFree
- 3) There is a rising use of Voice over Wi-Fi
- 4) Webconferencing – WebEx, Skype, GoToMeeting

So now we have a rough “per day” calculation to work with, we need to know how often the business traveler is out of the office.

Travel Days and Profiles

According to IPK International, a travel research company, there were 78 million international business trips made in 2014 by North Americans and Europeans. 14 million of these were made by North Americans travelling internationally, while 64 million were by Europeans. Of the 64 million trips made by Europeans, 54 million were within, and 10 million outside of, Europe. These trips lasted an average of 6 days. In addition, the United States Travel Association states that a business traveler makes 1 to 2 trips per week.

We can say that for each of the following 4 travel profiles, business travelers will use 760 MB/day or 4.5 GB over 6 days of travel a month. The number of trips associated with these days of travel will differ depending on a number of factors. For the purposes of this paper, we have assumed that business travelers within the US and Europe will make 6 overnight trips, while those traveling to Europe from the US or vice versa, along with those traveling to other parts of the world, will make 2 trips of 3 nights each on a monthly basis.

The profiles are:

- 1) A United States business traveler within the United States making 6 individual trips a month
- 2) A United States business traveler outside the US making 2 separate trips a month
- 3) A European business traveler within Europe making 6 individual trips a month
- 4) A European business traveler outside of Europe making 2 separate trips a month

Connectivity Options vs Travel Profiles

Below we have outlined the costs of each connectivity option for each business traveler profile. We have also built lost labor time into the cost model, as clearly when connectivity is not available or needs to be hunted out there is a productivity impact. [Simply Hired](#) tells us that the average salary of a US “Road Warrior” is \$63,000. This equates to 50 weeks at \$1,300, or \$32.50 an hour. It is this hourly rate that we have used to calculate the impact of lost productivity when business travelers are unable to connect or spend time looking for a connection.

What happens when you opt for a predominantly cellular solution?

Predominantly cellular					Total	
	Starts at	up to	Lost labor	Inflight Wi-Fi	Best case	Worst case
In the US	\$50	\$80	\$390	\$60	\$110	\$470
Outside the US	\$720	\$1,000	\$780	\$108	\$828	\$1,780
In Europe	\$53	\$360	\$65	\$32	\$85	\$425
Outside Europe	\$1,350	\$1,350	\$780	\$108	\$1,458	\$2,130

In the United States

It can be safely assumed that business travelers will have a domestic cellular plan with some level of data allowance. For the purposes of this study we will look at this as a sunk cost, and only take into account the cost of adding an additional 4.5 GB of data to a cellular plan. From our research we found that through AT&T or Verizon this would amount to an additional \$50 to \$80 a month.

Outside the US

Both Verizon and AT&T quote \$25 and \$30 a month respectively for 400 MB of data and 120 MB of data for travel in about 150 countries. To source 4.5 GB of data for a traveler outside the US using cellular in this way would come to over \$1,000. AT&T does a \$120 deal for 800 MB and if this was used the cost would come down to \$720.

Both operators suggest that some Wi-Fi is included in their packages as well, but the global footprint is so small so that it would be impossible to use this except for an occasional respite from using cellular. However, over time this may change.

In Europe

In 2012 the European Commission began putting new data caps on European data roaming, and reduced these caps in 2014. Cellular operators are now prevented from charging any more than €0.20 cents (\$0.22) for each MB of data. But with the data usage profile of the typical business traveler, that would still come to a staggering €900 or \$1,014 a month for the 4.5 GB that our business traveler needs. Even when data roaming disappears in 2017 in Europe, there remains the cost of buying extra data to meet this 4.5 GB demand and European pricing is likely to rise during that time to make up for the loss of roaming charges.

The current pricing is not a viable option and companies like Vodafone, Orange, T-Mobile and Telefonica have responded to this by introducing Euro Traveler services. For business travelers this European Traveler service can be included in your existing cellular package for a premium of \$53 to \$56, as long as you qualify for business discounts. Alternatively, some operators also offer European Data Bolt-Ons. For 4.5 GB these add-ons cost between \$300 and \$360 per month.

Disastrously, when most of these services reach their cap, data service becomes squeezed to an unworkable data rate. Alternatively, you have to proactively contact your operator and agree to pay for another slice of data.

Europeans outside Europe

Most of the European carriers do not disclose detailed business pricing for enterprises operating outside of Europe. Vodafone discloses a price of £5 (\$7.5) per 25 MB outside the EU, which would make supporting our 4.5 GB of data payload cost around \$1,350 a month. Others offer a similar, unworkable rate.

The in-flight problem

The big problem with using any of these cellular based services is that there is no such thing as in-flight cellular. So business travelers will either have to incur an extra charge such as the GoGo monthly Wi-Fi rate, at \$60, or suffer a loss of connectivity in-flight. That might not be so bad inside the US or Europe, where flight times are typically 1 or 2 hours. When travelling further afield, in-flight Wi-Fi goes up in price due to the longer journeys. However, the cost of NOT having in-flight Wi-Fi when your staff are on a 9 hour flight to Brazil, a 10 hour Flight to Argentina, or a 6 to 8 hour trip to the US from Europe, is huge. Depending upon trip frequency this could mean losing as much as a week of work from 4 in a given month.

Currently there is only Wi-Fi on 15% of internal European flights. This means the loss of not buying Wi-Fi in Europe is therefore reduced – because business travelers can only work connected 15% of the time even if they have in-flight Wi-Fi. We therefore calculate the labor loss within Europe at just 2 hours or \$65.

What happens when you buy Wi-Fi on demand as you need it?

We need to understand the piecemeal price of Wi-Fi at airports, in-flight and at both hotels and coffee bars, in order to work out what this approach will cost.

Buy Wi-Fi on demand as you need it				Total
	Airport	In-flight Wi-Fi	Hotel	
In the US	\$45	\$60	\$12	\$117
Outside the US	\$10	\$108	\$12	\$130
In Europe	\$30	\$32	\$11	\$73
Outside Europe	\$10	\$108	\$11	\$129

Airports in the US

Many airports offer free Wi-Fi for between 20 to 45 minutes with longer periods available for a charge, the so called Freemium model. Around 50% of the biggest 150 US airports offer this type of Wi-Fi connection.

We looked up the top 50 US [airports](#), showing that 23 offered entirely free Wi-Fi while the rest either used the Freemium model or simply charged all the time. Charges vary between \$2.95 per hour up to \$4.95 per hour, but daily 24 hour charges also apply and these go from \$4.95 a day to \$9.95 a day, and average out at \$7.50 for a 24 hour period. We calculate that at these rates it would cost some \$45 a month for the airport part of business trips.

Airports outside the US and in Europe

As Europe is one of the most popular destinations for US travelers going abroad, we have treated airports outside the US the same as those in Europe. European travel search site [Skyscanner](#) compiled a list of airport Wi-Fi charges, and their limits. They show a very similar pattern to US airports, in that about half are free, while roughly the same proportion require payment after an initial free period of between 15 and 30 minutes. A handful require payment even for initial access.

The average payment for 1 day of Wi-Fi is lower than airports in the US at \$5. For every overnight trip, having Wi-Fi at the airport both going out and coming back the following day would cost \$30 a month (assuming 50% of airports visited have free Wi-Fi). While internal European flights have a shorter check-in time than trans-continental flights, we have taken the daily Wi-Fi rate for each airport so this makes no difference. Because fewer journeys of this type are undertaken in our model, the cost would be nearer to \$10 a month at airports, when traveling on just 2 transcontinental journeys.

In-flight Wi-Fi

We discussed in-flight in the cellular only calculation, although only in terms of what it costs a company NOT to have it. When paying for in-flight Wi-Fi inside the US the costs can be around \$16 per trip, but there are also monthly \$60 packages available from companies like GoGo Air and Panasonic. For flights outside the US, charges are closer to \$27 per journey and there is no monthly pass. However, we can assume that any intercontinental trip would count as a longer, multiple-day business trip, meaning only 2 such business trips a month, each lasting 3 days. This would mean a cost of \$108 for 2 return business trips, both in case of Europeans travelling outside Europe and of US travelers leaving the US.

Purely within Europe, as we have seen in-flight Wi-Fi is only present on 15% of flights, costing around \$16 per trip. This makes the cost of using in-flight Wi-Fi in Europe just \$32 a month, or 2 flights out of 12.

Hotels and coffee bars

In the US

Wi-Fi in hotels is a mixed bag, and is rapidly devolving into a 2 tier service. Some offer straightforward free Wi-Fi, but an analysis of the top dozen hotel chains in the US shows that often free Wi-Fi requires a “premium” paid Wi-Fi service to get above 1 Mbps. This means free Wi-Fi will not support full quality video, Skype and other videoconferencing services, entertainment or Wi-Fi calling and business travelers will require an upgrade. This premium sits between \$3 and \$5 a night on average, with a couple of instances at \$7 a night; and in some instances each device has to be paid for separately. Our business traveler has no option but to upgrade from free Wi-Fi if he wants to work. Six of the top 12 chains either charge for Wi-Fi or charge for premium Wi-Fi and we calculate that the average Wi-Fi bill for hotels in the US would be an additional \$12 a month (based on 50% of hotels charging for Wi-Fi) for each business traveler away for 6 nights.

Some of the time the business travelers would also need Wi-Fi in a coffee bar, for instance because they haven't yet reached their hotel or are between meetings. But it is fairly easy to search for free Wi-Fi given the proliferation of Wi-Fi in coffee bars and restaurants.

In Europe

Some 60% of hotels in Europe now boast free Wi-Fi, a figure that appears surprisingly higher than the US. However, there are a number of reports pointing to free Wi-Fi in European hotels being of substantially poorer quality.

In much the same way as the US, the top ten or so hotel chains offer roughly 50% of rooms with free Wi-Fi, with 4 of those hotel groups offering a tiered Wi-Fi service – free but at a slower rate, topped up with a paid premium service. There are also some chains which in-

sist on paid-for Wi-Fi. Where payment is required it is between \$3 and \$10 per night, with an average price for this premium of \$5.50.

We propose that 50% of the stays in any given month at a hotel require this type of charge, so we would suggest a total charge of \$11.00. Again, in Europe some of the time the business travelers would also need Wi-Fi in a coffee bar but we have once again proposed that this is valued at zero cost.

Europeans outside Europe and outside the US

While we cannot cover the entire globe checking Wi-Fi prices we believe it is fair to say that buying Wi-Fi piecemeal, one connection at a time, would cost roughly the same in the rest of the world as in Europe. There are some exceptions, but largely Wi-Fi in airports, on planes, and in hotels is charged globally at no appreciable rate differences.

What happens if you opt for using only free Wi-Fi?

Opt for using free Wi-Fi				Total		
	Airport	Inflight Wi-Fi	Hotel	Lost labor	Hard costs	Real costs
In the US	\$0	\$0	\$0	\$536	\$0	\$536
Outside the US	\$0	\$0	\$0	\$877	\$0	\$877
In Europe	\$0	\$0	\$0	\$211	\$0	\$211
Outside Europe	\$0	\$0	\$0	\$877	\$0	\$877

At US airports

Only using free Wi-Fi is a strategy that suffers from 3 clear problems. First, when there is no free Wi-Fi, travelers do without, and find they cannot work efficiently. Second, travelers end up wasting time looking for free Wi-Fi rather than paying for it in their current location, which results in lost productivity. Third, these free Wi-Fi connections are often slow; preventing some activities from being possible and restricting the amount of devices that can even log on.

We can evaluate those effects using our formula for the cost of lost labor at \$32.50 an hour. We have shown previously that only using the free Wi-Fi minutes at US airports will cost an immediate \$97.50 a month in lost labor – equating to 30 minutes per trip over 6 trips, for a total of 3 lost hours.

In-flight Wi-Fi is also dead to anyone committed to using free Wi-Fi only. In the US this

means another 1 or 2 hours per trip, for a maximum of 12 hours a month, away from connected working – which we value at \$390.

There is a further period of lost labor when at a hotel if you need to pay for premium Wi-Fi. We have evaluated this as a loss of 1.5 hours of labor each month leaving your hotel and going out looking for reliable free Wi-Fi, which equates to another \$48.75.

We can immediately see from this that using Free Wi-Fi is perhaps the most damaging strategy for your company finances, despite all the cost being paid in what you might describe as “invisible costs.” In reality the effect is worse, not only will your staff be less productive but their morale will almost certainly be reduced.

At airports outside of the US (and outside Europe)

The number of free minutes at airports is the same whether the employee is flying to another part of the US or flying to another continent. There is a trade-off that while the waiting time for intercontinental flights is twice as long, travelers going that distance are likely to have less trips; although they may stay away for longer. We expect lost labor costs of some \$97.50 a month: pretty much the same as the US instance, despite fewer trips.

At airports inside Europe

If you have a strategy of only using free Wi-Fi inside European airports this is virtually an identical cost to the US, with the same percentage of US and European airports offering it for free, either permanently or for at least part of the time.

In-flight free Wi-Fi only

We have already calculated the cost in lost labor in the US, overseas and within Europe when we calculated the effect of using cellular only. The cost will be the same if only using free Wi-Fi. For the US we decided it would cost \$195 a month, and for trans-continental flights it would be more like \$780. However, for Europe where there is far less in-flight Wi-Fi available we have said the cost would be just \$65 a month.

Free Wi-Fi at hotels

We have said previously that Wi-Fi in hotels is evolving into a 2 tier service with some free, some paid, but many hotels offering free Wi-Fi at slow speeds, just for smartphone access. If you opt for free Wi-Fi only that means that on 50% of occasions you just won't be able to work properly or at all. In order to avoid that you would have to search out a coffee bar where higher speed free Wi-Fi is available. We would suggest that this means sacrificing some 30 minutes for each trip in half the hotels, so 1.5 hours in total at a cost of \$48.75 in lost labor.

What if you opt predominantly for a Wi-Fi subscription service?

Opt for using a Wi-Fi subscription service				
	Airport	In-flight Wi-Fi	Hotel	Subscription including in-flight Wi-Fi
In the US	\$0	\$20	\$0	\$55
Outside the US	\$0	\$20	\$0	\$55
In Europe	\$0	\$20	\$0	\$25
Outside Europe	\$0	\$20	\$0	\$55

We took our subscription pricing from the company that paid for this report. Yet whether you use iPass, which is the world’s largest commercial Wi-Fi network, or another brand, as long as it has deals on in-flight Wi-Fi, and a wide enough footprint, it would be the same outcome. iPass has more hotels, airports, and business venues than any other network. It has a variety of charging plans but offers a full service, unlimited data subscription for between \$25 and \$55 a month depending on where you are likely to access in-flight Wi-Fi, which gives automatic access to over 20 million hotspots around the world. iPass manages credentials for you, and signs you in automatically: selecting the strongest Wi-Fi signal attached to the fastest internet and saving you time.

Summary

Our research shows

Savings	Taking the best possible case			
	In the US	In Europe	Outside US	Outside Europe
Predominantly cellular	\$110	\$85	\$828	\$1,458
Buy Wi-Fi as you go	\$117	\$73	\$130	\$129
Use only Free Wi-Fi	\$536	\$211	\$877	\$877
Buy a Wi-Fi subscription	\$55	\$25	\$55	\$55
Minimum Savings	\$55	\$48	\$75	\$74

The increasing requirement for data just for working means that significant savings can be had all around the world by subscribing to a Wi-Fi subscription service: as long as it has a large Wi-Fi reach and contra deals, allowing customers to use in-flight Wi-Fi. The savings are accentuated if the business traveler wants to, for instance, access entertainment options in their hotel using streaming video: which could potentially double the data requirement yet would cost no more.

Conclusion

Data bloat has meant that business travelers, who are travelling for an average of 6 days per month, need access to 760 MB per day, or 4.5 GB per month, of data in order to do their jobs properly.

The cost of that data is over and above existing office and home broadband and cellular service packages, and represents a challenge for enterprises to provide. The most expensive way to go about providing this is having your staff only use Wi-Fi where it is free – this costs the enterprise \$211 a month in Europe, rising to \$536 in the US. It reaches an astonishing \$877 a month for those travelling outside of the US or the EU, mostly because of the huge implied loss of labor if company policy prohibits purchasing in-flight Wi-Fi.

Using cellular is feasible as an approach when inside the US and in Europe, because it is relatively cheap to provision extra capacity; at around \$50 per month for the best deals we could find. Yet this is still double the price of a Wi-Fi subscription service. In addition, this approach is ruined by having to buy in-flight Wi-Fi, or else accept a huge \$390 loss of productive labor time by not having your people connected when they are on planes.

Cellular makes no sense at all outside your region of origin, due to continued draconian

roaming rates for US or European employees who travel outside the US or Europe. For these their home operators would bill at least \$720 and \$1,350 respectively in roaming charges each month. The additional loss of in-flight labor, and therefore a \$780 lost productivity cost, makes this even more unacceptable.

The third most expensive approach to buying this extra data is to buy Wi-Fi as you need it: accepting any that is free, but paying when free Wi-Fi isn't an option.

This yielded different costs at the airport, in-flight and in hotels and came to a total, on average, of \$117 in the US and \$73 in Europe. For a US person travelling outside the US, or Europe, this rises to roughly \$130 in both instances.

The approach which came out by far the cheapest, in both the US and Europe and around the world, is to buy a monthly Wi-Fi subscription package for \$25 to \$55. This can be used in conjunction with an existing mobile package for urgent ad-hoc usage and for most voice, always being careful to stay strictly within your data limits.

Savings against the most competitive alternative vary from \$48 up to as much as \$75 a month per employee, if we take the most competitive operators and pricing. In many cases the savings are significantly more.