wandera

Reducing Mobile Data Expenses with MDO

Due to the proliferation of smartphones and tablets, and ever more data hungry applications, mobile data usage in the enterprise is rapidly increasing. Data already accounts for 50% of all mobile bills and is expected to reach 70% within the next three years. Increased international travel and roaming further exacerbate this rise in costs. This paper examines the future mobile data landscape and concludes that Mobile Data Optimization (MDO) has unique features that make it the most reliable and efficient way for businesses to take control of their mobile data costs and controls.

1. Get a grip on the mobile data avalanche

Smartphones and tablets have created completely new work practices in the enterprise. Yet, while mobile data usage is rapidly increasing, there is surprisingly little visibility into data usage across the business. The recent trend of increasing data usage has only just begun. Here's a closer look at the numbers:

- Global data usage roughly doubles every 12 months (Ericsson)

- A BlackBerry user who switches to Android or iPhone will use 8x more data (Tangoe)

- The average monthly data usage of an iPhone user is 800 MB in the UK and 1.04GB in the US (Tangoe and Visage)

- The projected average monthly data usage of an iPhone user by 2015 is 3GB in the UK and 3.5GB in the US and by 2017 roughly 12GB in both countries (Cisco)

- Average monthly data costs in the US are 1.04 GB x $0.03 = $31.2 (Visage)

- Projected average monthly data costs by 2015 are 3.50 GB x $0.03 = $105 (Visage)

TWELVEFOLD
MOBILE DATA TRAFFIC WILL INCREASE 12X
BY 2018 PRIMARILY DRIVEN BY VIDEO

12X

GLOBAL MOBILE
NETWORKS TRAFFIC

1000
800
600
400
200

DATA

VOICE

TOTAL MONTHLY TRAFFIC IN PETABYTES
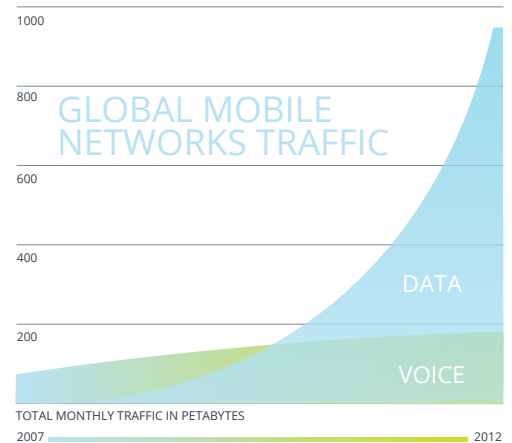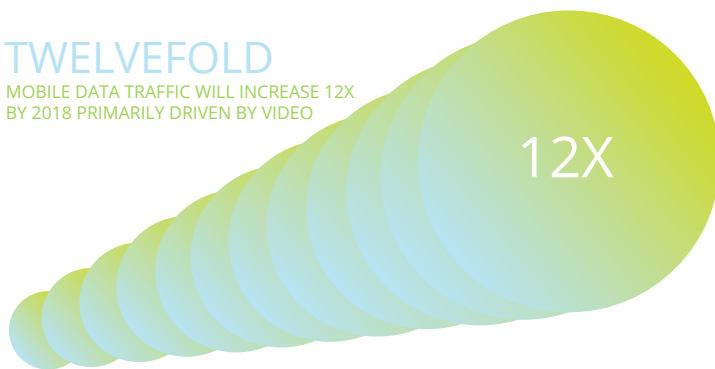2007   2012

Figure 1: Mobile data trends (Source: Ericsson Mobility Report - November 2012)

This explosion of data is fuelling the shift from voice to data revenues for mobile operators. Data accounts for approximately 40% of many corporate mobile bills, which is up from 20% two years ago (Visage). This trend will continue in the years to come and AT&T's CEO recently called the eventual arrival of popular data-only plans from the major carriers "inevitable".

Mobility Managers can't afford to ignore the data avalanche. Strategically managing mobile data consumption independent of operator pricing plans will become an absolute necessity for any successful organization. The Mobility Manager's first step is implementing Mobile Data Optimization, a technology that enables customers to manage and reduce data consumption through compression, visibility and control settings. MDO will allow you to get full visibility into data usage across your business, it will give you granular per user and per app reports to identify cost concerns and will allow you to set preferred levels and policy controls to achieve desired savings and stay within your mobility budget.

2. Excessive roaming costs – reduce consumption when it's high cost

Anecdotal evidence of bill shock is plentiful. The mobile worker for example who came back from a one-week trip with a $10,000 bill because he downloaded latest episode of "Homeland". According to research by Informa, operators write off 40% of data roaming charges as bad debt during peak months. Nevertheless excessive roaming charges are real and substantial and bill shock also incurs hours of wasted management time.

- Nearly 70% of the Fortune 1,000 are battling increases in roaming data charges

- 37% of companies surveyed spend $1,000 or more per month per user on average roaming costs with approximately 60% accounting for mobile data. Bill shock stories ranged from $10,000 to $200,000

- Nearly 70% of companies support employees that, on average, make four or more international trips each year, and more than half have users that travel overseas at least once a month, if not multiple times each month

- According to a recent iPass study, 43% of mobile workers received at least one expensive roaming bill in the past year. They add that the average expensive data roaming bill is $1,089
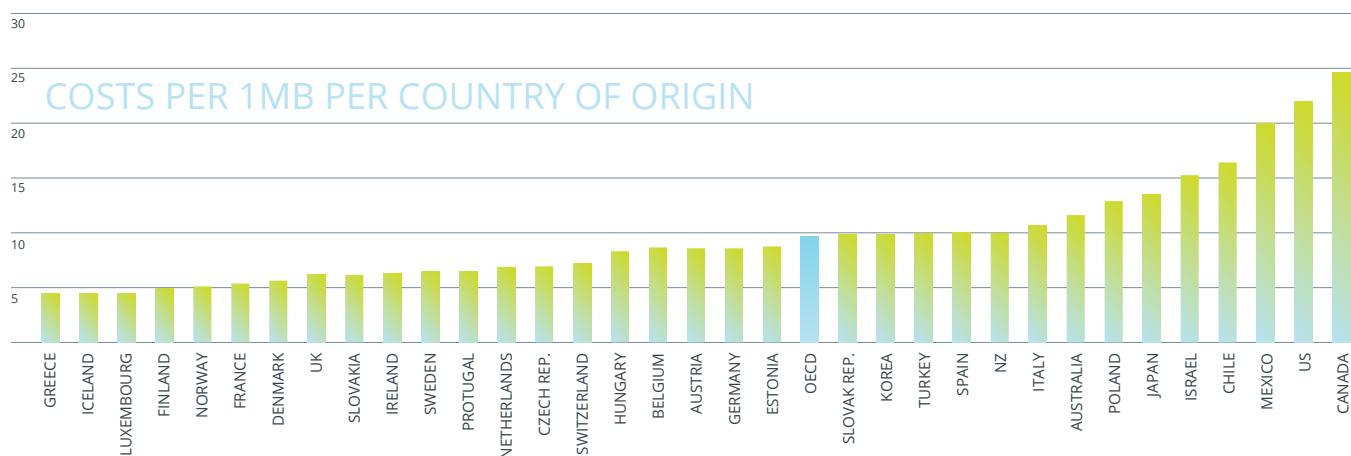

COSTS PER 1MB PER COUNTRY OF ORIGIN

Figure 2: Costs per 1MB per country of origin (Source: OECD International Roaming Report)

The OECD chart above highlights the average data roaming costs per MB by country of origin. There is some good news though. Increased regulation in the EU is driving down the costs of roaming and the adoption of day-passes across the region. It has also set the tone for considerable developments in other parts of the world, most notably ATUG's Roam Fair campaign in Australia and the call regulation of operator interconnection fees in North America.

The bad news, however, is that the impact of regulation will ultimately be limited on a global basis and the costs of data roaming will remain high given the fragmentation of the global mobile operator market. More importantly, the continuous increase in data roaming consumption will quite easily outstrip any per unit price drops. In fact, companies are predicted to

grow their data roaming spend by 21% each year between 2012-2017 (Juniper). It seems that in the aftermath of the "data bill shock legacy", users are slowly becoming more comfortable and educated in using data abroad. The graph below highlights penetration of popular apps whilst roaming and we see that 70% of roaming users use maps but more surprisingly over 60% use Facebook whilst roaming.

SERVICE PENETRATION OF POPULAR APPLICATIONS, BY ACCESS TECHNOLOGY OF SMARTPHONE USERS, JAN '12

Application users via cellular access as % of total cellular users

Application users via Wi-Fi access as % of total Wi-Fi users

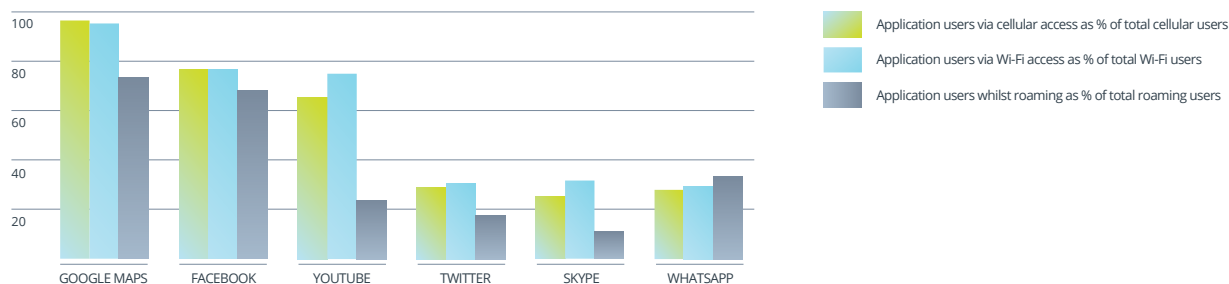Application users whilst roaming as % of total roaming users

Figure 3: UK, service penetration of popular applications, by access technology of smartphone users, January 2012 (Source: Informa 2012)

One method adopted by some Mobility Managers is to avoid the threat of exorbitant roaming charges by disabling data roaming all together. However, doing so can have serious productivity implications as there's still a business requirement for mobile workers to be connected to the flow of information.

Mobility Managers should have the ability to control and reduce data consumption when it's high cost and low impact, while still being able to accommodate their employees' roaming requirements. A bulletproof solution is necessary that doesn't require drastic changes in user behavior. Implementing an effective roaming filter that has the option for full image and video compression, blocking of data-hungry non-business apps such as Instagram and Facebook and enforcing of an overall threshold policy (bill shock prevention) of 25MB per day, delivers significant business savings and ROI.

3. LTE is coming fast, be prepared

LTE is being built-out around the world and will reach 1.6 billion subscribers by 2018. These subscriptions will represent the high-end share of the total global subscriber base. Rapid migration to more advanced technologies in developed countries means global GSM/EDGE subscription numbers will decline after 2013 and soon enough the majority of corporate mobile lines in advanced economies will be on LTE.

HISTORIC LTE DEVELOPMENT

LTE IS THE FASTEST DEVELOPING SYSTEM IN THE HISTORY OF MOBILE COMMUNICATION

Estimated 1.6 billion subscriptions

55 million LTE (4G) subscriptions
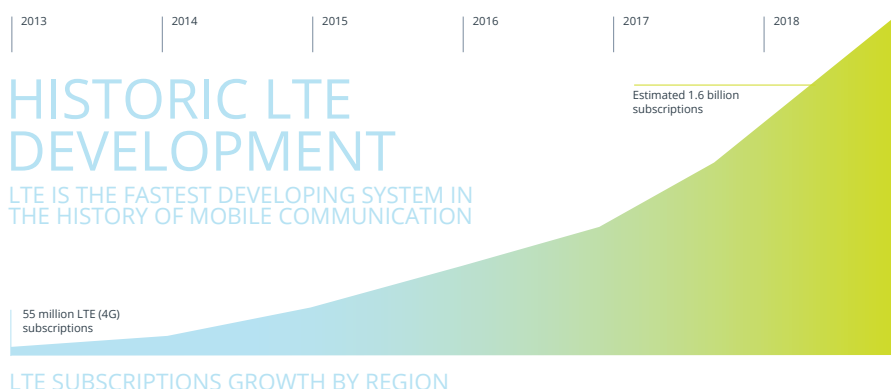
LTE SUBSCRIPTIONS GROWTH BY REGION

Figure 4: Historic LTE development (Source: Ericsson)

What effect does this have on an organization's mobility strategy? Increased adoption of LTE means faster speeds and despite being in the early days of rollout, LTE can already provide downlink peak rates of around 100 Mbps, with current standardization allowing for even higher speeds. This has a number of effects on usage but perhaps the most dramatic is the impact it has on mobile video. Compared to the average mobile user, LTE subscribers in the US are 33% more likely to watch a video on their smartphone. It is no coincidence then that 2012, the year LTE's emergence, was the first year that video accounted for more than 50% of overall mobile data. This is set to rise to 70% by 2016.

EXABYTES PER MONTH

78% CAGR 2011-2016

- Mobile VoIP (0.3%)
- Mobile Gaming (1.1%)
- Mobile File Sharing (3.3%)
- Mobile M2M (4.7%)
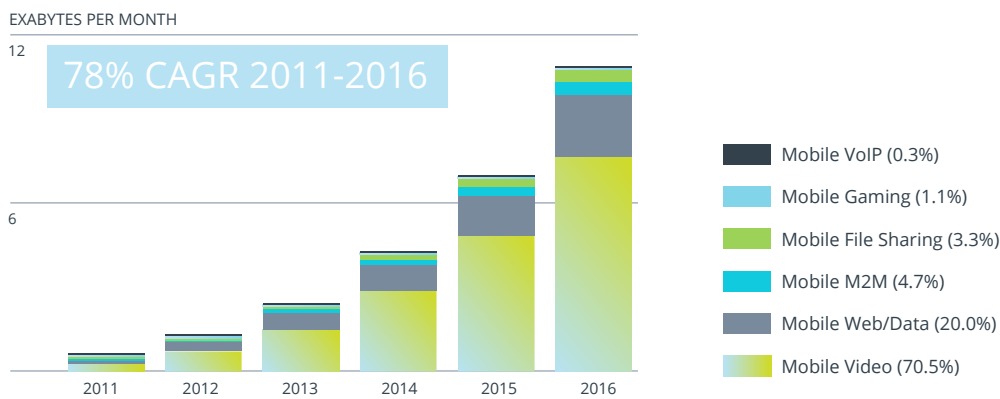- Mobile Web/Data (20.0%)
- Mobile Video (70.5%)

Figure 5: Mobile Video Will Generate Over 70% of Mobile Data Traffic by 2016 (Source: Cisco VN Mobile 2012)

In the era of LTE, compressing mobile data and especially video traffic will give companies a significant edge in handling increased data volume and costs. Deploying an MDO service allows companies to compress mobile video on the fly through a mix of techniques such as transcoding and frame / bit rate reduction. Compression settings are ultimately manageable through an MDO control panel and while some companies will decide to apply more aggressive compression than others, a 20% reduction in overall data usage through compression while achieving results of up to 40% on video and even higher on traffic-heavy, non-business apps such as Facebook is commonly considered to be best practice.

Mobility Managers in the market for MDO solutions should look for a variety of different compression techniques to deliver the best possible data savings as well as traffic acceleration to provide a better experience for the user base. These are the key MDO features that mobility managers should look for:

Technique	Explanation
Gzip Compression	Web page compression with zip standard
CSS/JS Conflation	Reduces HTTP browser requests during page refresh by combining multiple distinct JavaScript and CSS files into one to minimize round-trip times
CSS/JS Minification	Pares linked and inline CSS and JS, rewrites any found images, minifies the CSS and collapse whitespaces
Image Compression	Re-scales, re-compresses, and strips metadata from images. Sprite images
Video Compression	Frame and bit rate reduction (admin controlled); transcoding of video on the fly (map to different format)
Page Reordering	Optimize the page by changing the order pages load
Caching/CDN	Accelerate traffic through caching

4. BYOD fatigue, it's time to regain control

BYOD allows users to access corporate resources on their own devices driving productivity and collaboration across the enterprise. Mobile Data Management providers are focused on helping enterprises manage these devices but the resulting mobility costs for the enterprise remain unaddressed.

Many companies allow some form of BYOD and operate on a variety of different models. Some are adopting a middle-of-the-road model whereby employees are given a budget to buy their device and made liable for their monthly operator costs. Other companies let employees use their personal device and the employee is liable for the monthly operator expenses either partly or in full.

WHO PAYS FOR YOUR SMARTPHONE PLAN?

- I pay everything out of my own pocket (18%)
- I pay some and my company pays the rest (7%)
- I receive a company stipend for my smartphone (6%)
- My company pays for my smartphone plan (57%)
- I don't have a business smartphone (11%)
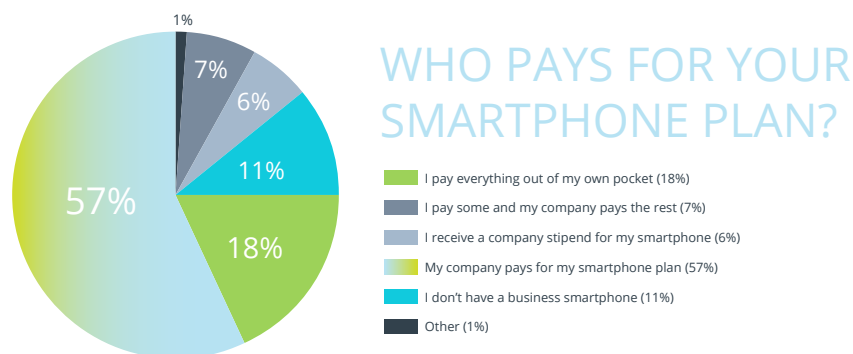- Other (1%)

Figure 6: Who pays for your smartphone service plan? (Source: iPass)

Regardless of the model, enterprises are beginning to heed the warnings of unexpected bill fluctuations and many Mobility Managers are longing back to the days when they owned the equipment and were fully and directly liable for operator expenses. Regardless of the size of the operator bill, every enterprise values constant and predictable versus variable and volatile mobility costs.

One of the ways to keep mobile data expenses predictable in a BYOD world where the business is liable for the operator costs is by deploying a Mobile Data Optimization solution. It's vital that controls are implemented that facilitate granular visibility of data usage on a per user basis, data cap controls should be implemented independent of operator plans and the ability to split out bills based on personal vs. business usage if required. Historically, data usage has proven to be the most difficult expense element to optimize due to the anonymous nature of it (i.e. it wasn't possible to know whether the employee accessing information for business or personal purposes). With MDO determining the validity of data charges is now a reality for the mobility or IT department.

5. The emergence of Managed Mobility Services: flexibility is the key to success

As mobile environments become more complex, operators and other providers are increasingly bringing services to market that support the complete mobile lifecycle including the operator contract, expense management and MDM. The ultimate objective for these solutions is:

- Provide a single global or regional contract to manage the complete mobile lifecycle at a predictable cost (fixed price per month per user profile and bundled solutions to address specific business requirements)

- Drive significant cost savings through vendor consolidation and economies of scale (outsourcing the management of dozens or hundreds of contracts globally)

- Take ownership of the mobility lifecycle holistically through a traditional outsourcing model

- Transfer a complex, non core competency into the hands of "experts"

The reality, unfortunately, is often less positive with the following challenges to be considered:

- While operators can deliver on some of these solutions none can truly deliver on all. All solutions are currently built on multiple carriers' resell agreements and partnerships with TEM and MDM providers

- Depth and maturity of global operator solutions varies greatly from region to region and country to country

- Vodafone, Telefonica and the FreeMove Alliance have been early leaders in offering a single contract across countries but the proposition is only viable for the very large enterprise as typically the minimum number of connections is 2,000

- Success stories are few and far between. Outsourcing a "problem" often creates an even bigger problem

Enterprises should become familiar with Managed Mobility Service offerings and understand how they may be deployed. One indication of their relevance is that Gartner receive up to five inquiries per week from global enterprises considering an MMS solution.

One has to consider that the length of a typical MMS contract (three years) and the pace of increasing data consumption are inherently in conflict. A 100 GB pool for 100 employees may work for today's data requirements but is not likely to in two years time.

MDO tools allows Mobility Managers to allocate their data pool across users effectively to make sure that the top 5% of data super users can't waste 90% of the company's overall data allowance. Only by having MDO in place, can an enterprise manage the challenge of increased data consumption in the years to come.

Summary and Conclusion

The conclusions reached in this paper are as follows:

- Mobile data consumption will continue to increase

- Increased mobility can bring significant business benefits but controlling data usage is challenging

- BYOD has the potential to create more business headaches and higher costs

- Visibility and control of mobile data has been minimal

- MDO offers the enterprise a way to reduce costs, manage corporate mobile data usage, and remain flexible

- Implementation of MDO is the most simple and cost effective way for businesses to manage mobile data costs

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About Wandera

Wandera is the pioneer and leading provider of Mobile Data Optimization (MDO), providing businesses with significant savings, as well as control and visibility of their mobile data usage. Powered by its proprietary cloud data compression and processing engine, Wandera works transparently for mobile devices wherever they are in the world, without changing the user experience. Deployment is simple and the service is scalable and resilient, optimized to process billions of daily mobile data requests.

Founded in 2012 Wandera is headquartered in San Francisco and London, and backed by Bessemer Venture Partners.

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