

The Data Boom is Coming!

Why You Need to Look at Data Consumption Differently

With the evolution of smartphones and tablets, mobile use styles have changed dramatically. Not only is there a burgeoning number of productivity apps, but non-business activities such as online entertainment, videos and social media have changed the way we move through our professional and personal lives. Since mobile devices are always with us, the need to constantly check in through email, social media and messaging runs through the course of the day and into the evenings making it difficult for even the most disciplined of employees to avoid indulging periodically in streaming audio and video during the workday.

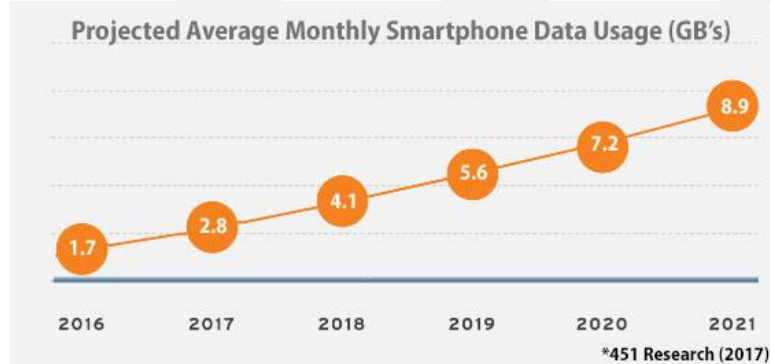
Challenges of Quantifying Data Usage

While activities like sharing photos, posting to Facebook and downloading videos may only consume a few minutes of time, the usage can equate to significant data consumption, particularly when not connected to WIFI. When the cost of mobile usage was measured in voice minutes, we had reliable ways to assess the cost of our interaction by the length of the call which isn't the case with data. Today, seemingly innocuous activities can involve large quantities of data and since it is not common for business users to have access to their monthly company invoice and charge details, they typically have little recognition of the hard cost impact of their off-business behaviors on the company bottom line.

Today's Minor Indiscretions are Tomorrow's Budget Busters

Based on a recent analysis of our business client base, MobilSense Technologies found that those with business-liable devices were in line with overall mobile data usage rates. For the first half of 2017, we found our average usage per device to be 1.7GB which matched the recorded rates for 2016 by 451 Research indicated below. Since carrier data plans generally start at 2GBs, when average data usage is under 2GBs, reducing data waste will not translate into direct cost savings. With industry data averages in 2017 cresting above 2GBs, the cost problem associated with unmanaged data usage has now become real. If companies are not focused on unauthorized entertainment use during and after business hours, they will see a steady rise in carrier costs.

The recently published 451 Research study should give companies pause as the projected mobile device

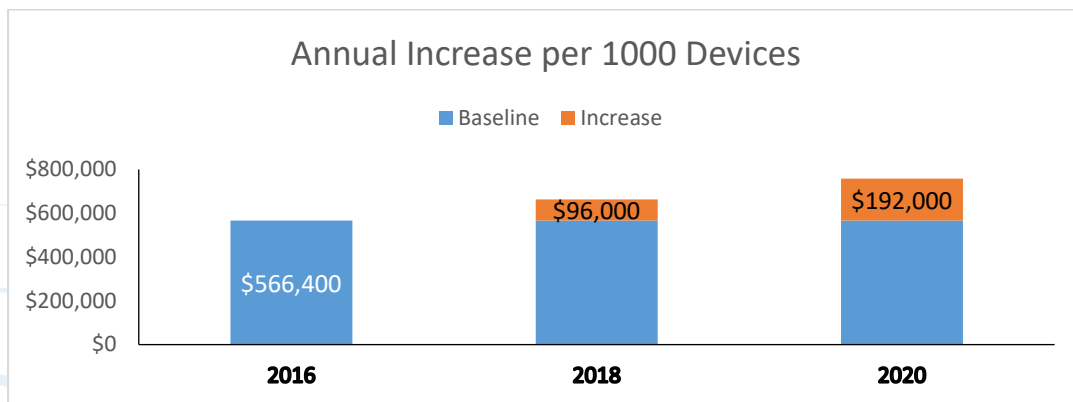


average data usage is going to quadruple over the next four years to nearly 9GBs/month. This dramatic increase in data consumption will be facilitated by the move to next generation networks like 5G. Selective testing has already begun with most carriers announcing initial roll outs of 5G beginning in 2019 and full deployments by 2020. Even if actual use comes in at half of the

growth projections, companies are going to experience significant budgetary impacts over the next 4 years.

How Data Growth Can Impact Mobility Budgets

It is common practice today for carriers to set their minimum data quantity on smartphones and data cards at 2GBs and then provide volume discount incentives in 2GB increments where the cost/GB decreases with larger data plan purchases. The current slope of these increasing data plans is that the next higher plan usually comes at \$10 for each 2GBs of additional data. This effectively establishes the cost of going over a 2GB company average threshold at \$5 per GB, not including discount. Depending upon your company discount, it typically costs between \$3.75 and \$4.60 per incremental GB used by every employee in an overage situation. Below is an extrapolation that combines today's carrier pricing curve to the projected GB growth that is expected to double in 2018 over 2016 usage, and triple by 2020. Using a sample case of 1,000 devices, in a ratio of 80% smartphones to 20% data-only devices and applying a 20% discount we see the following potential budget impacts not including taxes or other charges.

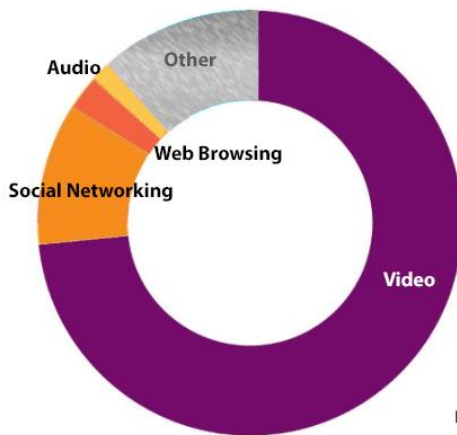


If your business data usage is allowed to grow at projected growth rates and nothing is done to curb employee data usage, your invoice will increase by a minimum of 17% in 2018 and 34% by 2020. Without preemptive action to monitor and control employee data usage, your company may be heading for an annual budget increase of 20% or more per year over the next three years.

What is Driving the Data Growth

While increasing social media, entertainment site browsing and audio streaming are expected to increase in the coming years, the real culprit fueling the exponential data growth projections is video. In 2016, Ericsson estimated that video mobile usage represented 50% of all data traffic. To add further context, Samsung estimates that streaming 2.8 hours of standard quality video on a mobile device can consume 2GBs of data or the same amount consumed by 1.3 hours of high definition video.

2022 Mobile Traffic by Application



Ericsson 2017

Ericsson further estimates that by 2022, entertainment data usage will comprise over 85% of all mobile device usage with video remaining the dominant category of usage. Shining additional light on the problem of entertainment usage with business-liable devices is a 2017 research study by MobilSense Technologies which found in analyzing over 200 Million data transactions over 15 months that 52% of that data usage occurred during off-peak hours (7PM to 6AM weekdays or on weekends). While this time range doesn't necessarily reflect all off-business work schedules, it is remarkable that such high volumes of mobile data usage occur on nights and weekends. Unless

companies subscribe to an employee stipend methodology, they are paying for employee off-hours entertainment through higher mobile invoices.

Two-Pronged Attack to Contain Increasing Data Usage

To curtail the growth rate of data usage requires a comprehensive view of when and how data is being used and then appropriate mechanism to control data usage.

Increased Visibility

Some carriers provide data transaction detail but it's delivered as raw data; doesn't indicate the location of the site visited, and lacks analytical tools to make the information meaningful for making budgetary decisions. Supplemental tools are necessary to turn this type of information into business intelligence and an enhanced capability is needed in order to understand the actual sites being used by mobile device users. Below is an indication of the types of visibility that is necessary to deal with the growing data usage issues:

- Transaction detail categorized by business and off-business hours
- Recognition of patterns associated with entertainment usage
- Real-time reporting tools to identify high growth users before cycle end
- In-depth understanding of actual sites visited by top users

Increased Control

The second category of cost control is the effective establishment of mobile use policies and active monitoring and enforcement mechanisms. With projected compounded annual growth over the next four years to reach 55% of video streaming, 41% for social networking, and 21% for web browsing, unconstrained employee data usage will soon become the largest contributor to invoice cost increases. The primary capabilities to effective governing of data usage include:

- Effective and clear company usage policies
- Effective tools to identify data wasters with vigilant enforcement criteria

- Effective alerting and management involvement in monitoring employees
- Real-time caps and limitations for repeat policy violators

Understanding Data Pattern Usage

To develop methods to insure data use meets published company policy and standards, the starting point is understanding data use patterns of corporate smartphone, data card and tablet users. Surprisingly, many enterprises are not yet fully focused on this problem and waiting until it impacts the budgets is an ill-advised approach. Now is the time for organizations to take a careful look at their corporate use policies for data and begin a more disciplined review of unauthorized behaviors associated with data consumption.

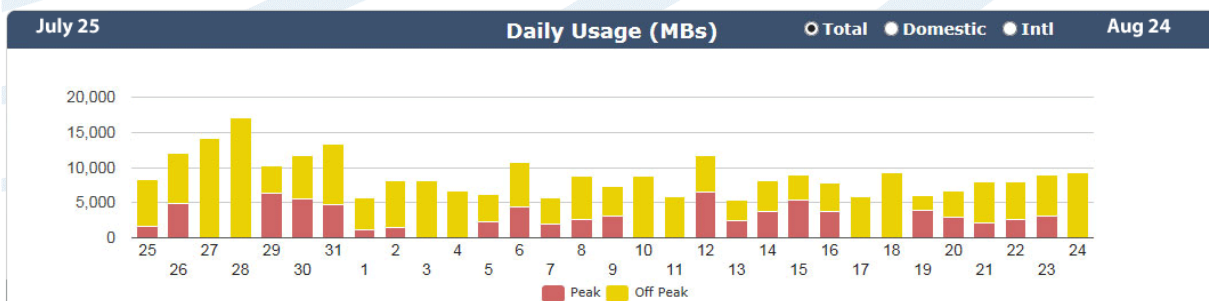
Corporate Oversight

Having the right analytics for telecom administrators is an important starting point. These administrators should have access to trending charts and variance information. They should also be able to view aggregate data usage by business and off business categories. They should have easy access to top users and a quick way to drill down and understand troubling patterns of use that would spot light policy violations either during business hours or after business hours. They should be aware of repetitive high data use individuals.

Management Oversight

Where companies experience significant progress is when line management is involved with not only educating but monitoring their employee’s usage on a monthly basis. When management has access to an online reporting system that provides proactive alerts to potential problem usage situations, accompanied by a simple and intuitive interface, it permits management to drilldown on suspect usage. This enables the establishment of a corporate culture that reinforces excessive and out-of-policy usage is not tolerated.

To be successful, analytics are needed to form business intelligence out of the raw data carriers provide. MobilSense has found that by examining usage segmented by business and off-business hours it can provide the relevant information needed to guide change around the data usage activities of its employees. Corporate administrators need access to the visual representations like the one shown below where Peak and Off-Peak hours can be configured to the specific hours of business for better accuracy.



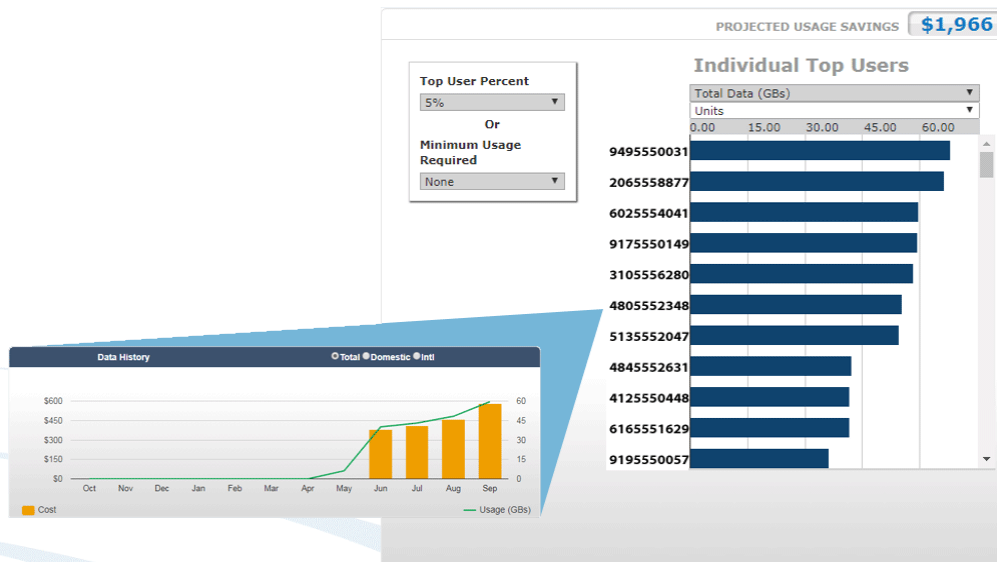
Pattern Recognition

Standard and High Definition (HD) video streaming has distinctive footprints that can provide insights to how data is being consumed even if the actual website is not known. Patterns of streaming video can be recognized by repetitive data transactions. Recognizing the time of day on lengthy data usage also provides insights. Below is a sample of suspicious off-hours video streaming.

Data Used		Jul 31	All Data	Export All	
Date	Location	MB Used	Roam	Total	
07/31 08:12 PM		195.31	\$0.00	\$0.00	
07/31 08:15 PM		195.31	\$0.00	\$0.00	
07/31 08:17 PM		195.31	\$0.00	\$0.00	
07/31 08:21 PM		195.31	\$0.00	\$0.00	
07/31 08:25 PM		195.31	\$0.00	\$0.00	
07/31 08:28 PM		195.31	\$0.00	\$0.00	
07/31 08:32 PM		195.31	\$0.00	\$0.00	
07/31 08:35 PM		195.31	\$0.00	\$0.00	
07/31 08:39 PM		195.18	\$0.00	\$0.00	
07/31 08:43 PM		195.29	\$0.00	\$0.00	
07/31 08:46 PM		195.31	\$0.00	\$0.00	
07/31 08:49 PM		195.31	\$0.00	\$0.00	
07/31 08:52 PM		195.31	\$0.00	\$0.00	
07/31 08:55 PM		195.31	\$0.00	\$0.00	
07/31 08:58 PM		195.31	\$0.00	\$0.00	
07/31 09:00 PM		195.31	\$0.00	\$0.00	
07/31 09:04 PM		195.31	\$0.00	\$0.00	
07/31 09:07 PM		195.31	\$0.00	\$0.00	
07/31 09:09 PM		195.31	\$0.00	\$0.00	
Grand Total		30	5,033.80	\$0.00	\$0.00

Top User Identification

A starting point for every company is to address the egregious users with a ‘whack-a-mole’ strategy. This process can be effective in addressing usage behavior of the most obvious, top users. However, the right tools are necessary to make this process effective and accurate. This involves a way to quickly identify the top user suspects and a quick way to discern whether they are recent or long-term data wasters through a quick drilldown to their historic usage.

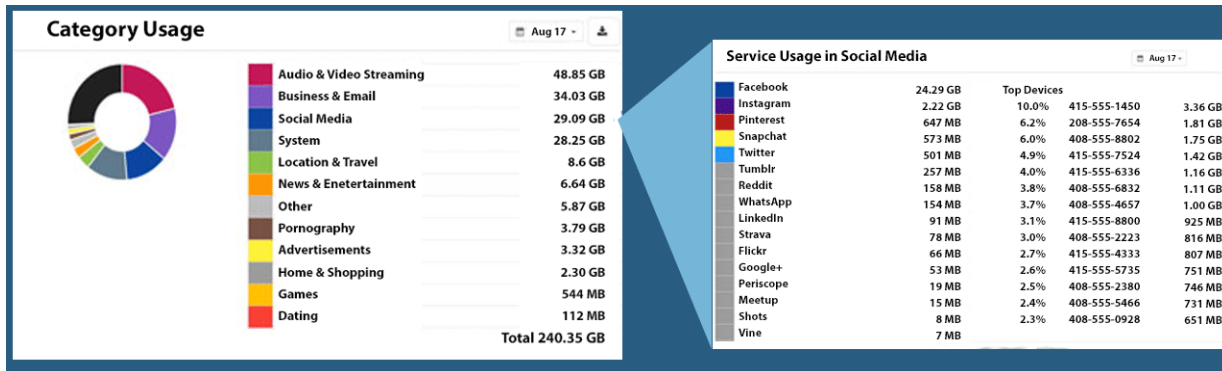


Managing the Rank and File

While there is some financial satisfaction and a quick return from focusing on the top users, this sometimes results in more emotional victories than in fully addressing the underlying issue of data overuse. To take someone that has been running up 100 GBs over several months and turn them into a 5 GB user can feel like a victory but the economics will favor processes that focus on the broad base of users. For example, if we use \$5 per GB as a way to quantify usage, if you have 5 users consuming 100 GBs more than they should and they return to a normal usage pattern, this will result in \$2,500 in savings on an ongoing basis. However, the savings that come from 2,000 users each using 2 GBs more than they should would be \$20,000.

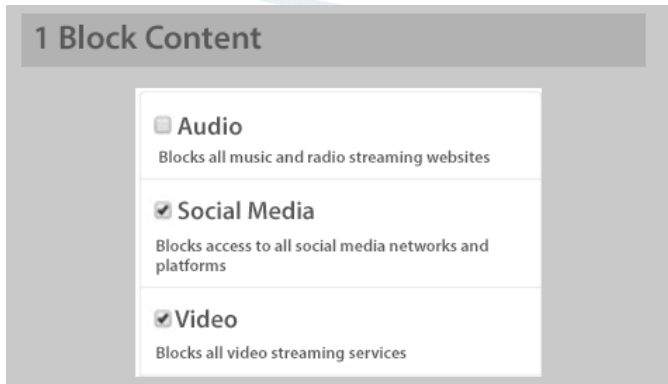
The Power of Knowing Actual Sites Visited

For some subset of employees, it could be useful to know the sites visited. This may comprise of those that consistently appear on top user reports. The insight of knowing exactly what sites are being accessed in each month can yield additional savings opportunities.



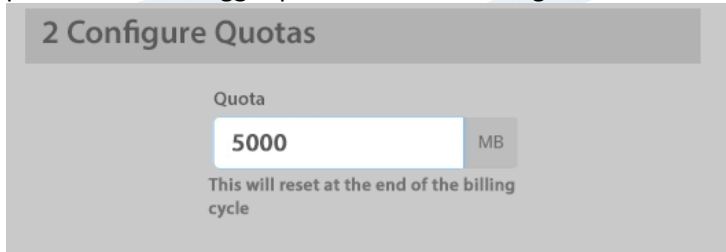
Real-Time Controls

In addition to being able to identify the site being visited, it is also just as important to have the ability to set thresholds of usage. At a defined threshold the employee may receive a notification that they have surpassed a pre-set level of data usage or certain categories of usage such as audio, social media or video may be blocked. This control can be applied at the individual SIM or device level. For example, if a company does not want their users to access social media or video sites, those sites can be blocked from access on any mobile device provided by the company.



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If an organization considered anything over 5GB to be excessive, warnings could be generated at predetermined trigger points with data being shut down when consumption reaches the 5GB threshold.



As with any control mechanism, there needs to be a harmonious balance between policy, culture and employee morale. We believe this can be done with impressive financial impact to organizations who are serious about preparing for the impending data boom.



Some may argue that by deploying a Mobile Device Management (MDM) tool that restricts the installation of categories of applications that the problem is solved. It is solved until a user figures out they can access any site on their mobile devices through a browser and not an application. For someone with an urgent need to visit a social medial or adult content site for which they cannot load an app, they simply need to login to the website to accomplish the same objective.

WIFI Usage Policies

Where security is not a concern, employees should be encouraged to use their home WIFI when not at work. It is quite easy to recognize by the time-of-day histogram illustrated above if they are not complying with that policy.

At work, WIFI access can be enabled in a way to ensure appropriate privacy and security and as such it may always be the policy to utilize in-office WIFI during work hours when available.

The Conclusion

Now is the time for enterprises who assign corporate-owned devices to become more aggressive in identifying and understanding the data consumption of its employees. To assume users are informed about the kinds of activities that produce high data use and expect they will use restraint is being overly optimistic and not realistic. Guidance through notification is a safety net to not only keep them aware of their own usage behaviors, but provides the foundation for their own self-management.

Contact MobilSense today to learn how our unique approach to identifying unproductive data use can not only monitor but identify data waste and provide the proactive controls needed to enforce company policy.

