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*Sample Pages*

**Will 3G Networks Cope?**  
**3G usage and capacity forecasts**  
**for 2009–2014**

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September 2009

## About the authors

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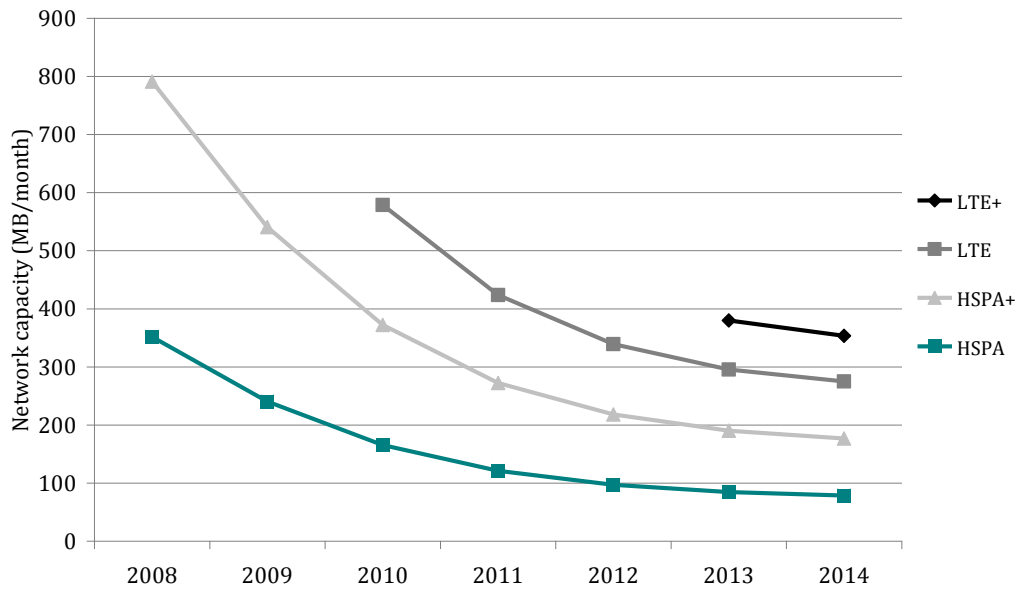


Figure 2: 3G network capacity per device for an incumbent 3G operator, 2008–2014

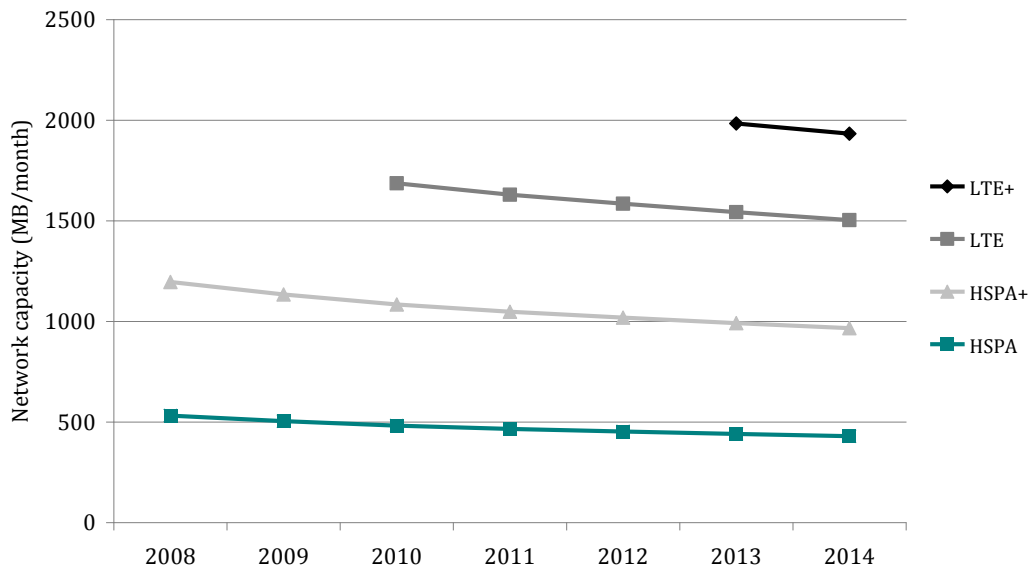
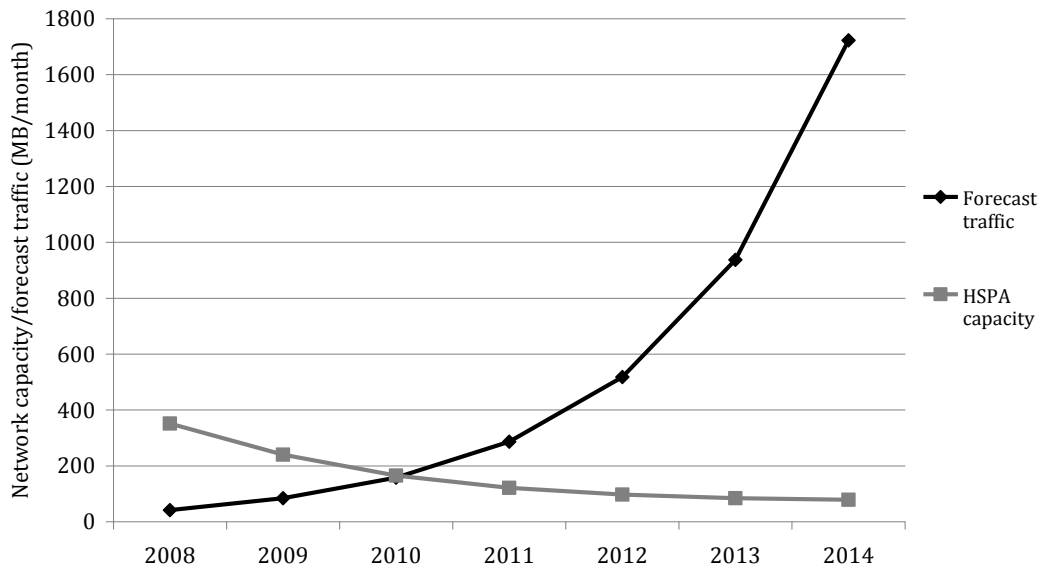


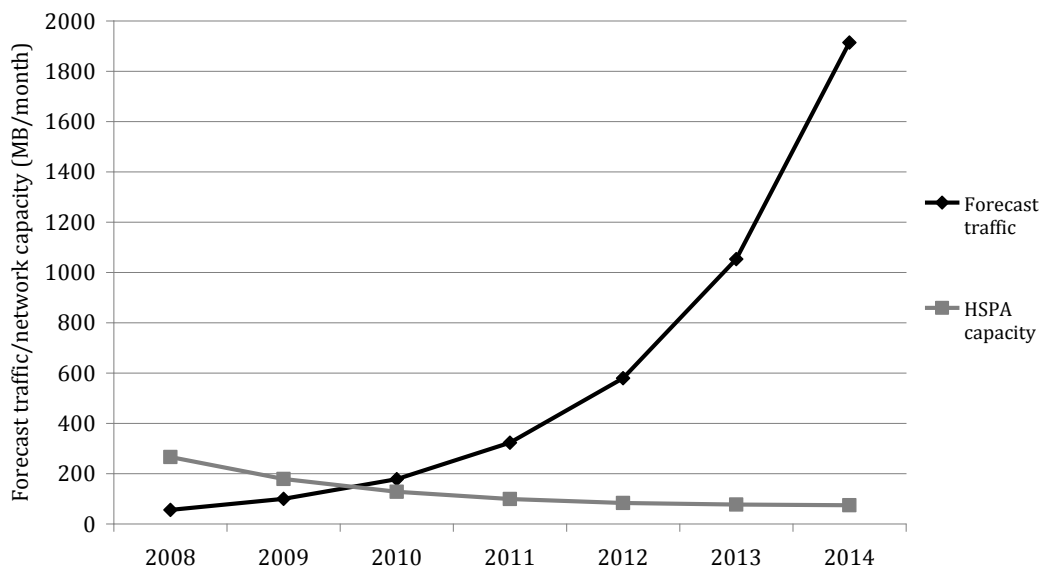
Figure 3: 3G network capacity per device for a new-entrant 3G operator, 2008–2014

The combination of rapidly-declining network capacity per 3G device and increasing traffic per device in the *wireless-only scenario* will result in **HSPA capacity shortfalls in mid-2010** for some incumbent operators, or even earlier if customer migrate rapidly from 2/2.5G to 3G services.

As shown in **Figure 4**, an incumbent 3G operator will have insufficient capacity to support traffic demand **during 2010** in the *wireless-only scenario*. The situation will be even worse if the migration from 2/2.5G to 3G services is faster than our base case, as shown in **Figure 5**.



**Figure 4:** HSPA network capacity per device and forecast traffic per device for an incumbent 3G operator, for the wireless-only scenario, 2008–2014



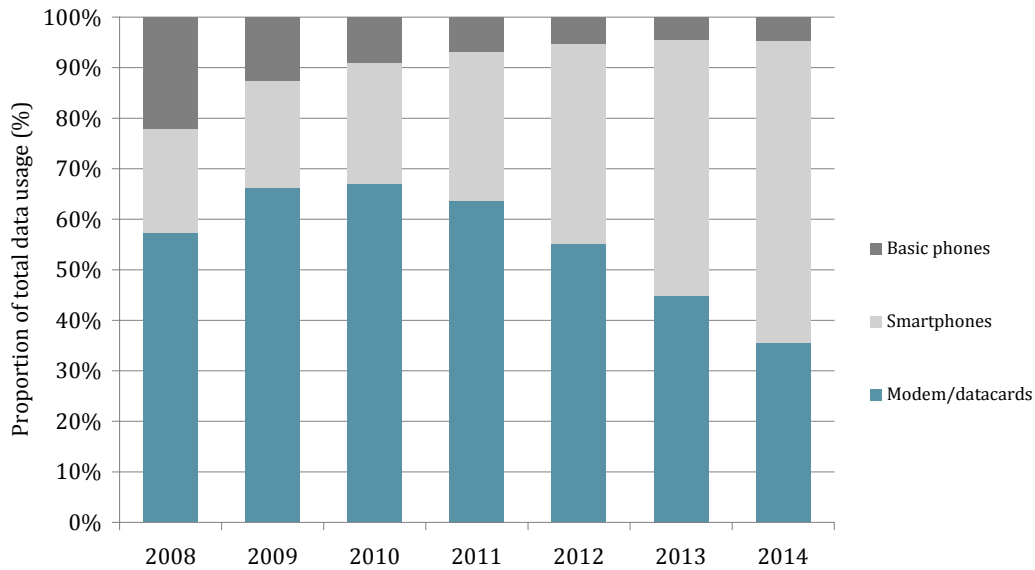
**Figure 5:** HSPA network capacity per device and forecast traffic per device for an incumbent 3G operator for the wireless-only scenario with accelerated 3G migration, 2008–2014

- In March 2009, T-Mobile in the Netherlands reported that total weekly usage of mobile data services increased from 2.5TB (equivalent to 10.8TB per month) to 3.1TB (13.4TB per month) in the first half of 2008. In the second half of 2008, total weekly mobile data traffic increased from 3.1TB (13.4TB per month) to 20.5TB (88.8TB per month) – a **561% increase** in six months. Total mobile data traffic increased about **seven fold** in the 12 month period to the end of 2008.
- 3 UK, which has aggressively promoted affordable mobile broadband services, has reported very large increases in mobile traffic volumes. In April 2008, it reported that mobile traffic had increased by a **factor of seven** in the six month period ending March 2008.
- Total monthly data usage on all of Hong Kong's cellular networks reached 133TB in December 2008, a **312% increase** from December 2007, according to the Office of the Telecommunications Authority in Hong Kong. As shown in **Table 1**, monthly usage per 2.5/3G customer was 40.3MB per month in December 2008, a 266% increase from December 2007.
- In a newsletter<sup>1</sup>, Ericsson stated that studies of its customers' HSPA networks worldwide showed a **3.5-fold increase** in traffic in the 12 months to July 2008.

Month	Total monthly data usage	Annual increase in data usage	Monthly usage per 2.5/3G customer	3G penetration
Dec 2002	0.04TB		0.2MB	Not reported
Dec 2003	0.2TB	400%	0.3MB	Not reported
Dec 2004	2.3TB	1050%	1.7MB	Not reported
Dec 2005	4.6TB	100%	2.5MB	7.4%
Dec 2006	9.1TB	97%	4.1MB	14.1%
Dec 2007	32.3TB	255%	11.0MB	18.9%
Dec 2008	133.1TB	312%	40.3MB	24.7%

**Table 1:** Monthly cellular data usage in Hong Kong, December 2002–December 2008

<sup>1</sup> Ericsson Quarterly Newsletter, Q3 2008, [http://www.ericsson.com/ericsson/industryanalysts/newsletter/archive/q3\\_2008.shtml](http://www.ericsson.com/ericsson/industryanalysts/newsletter/archive/q3_2008.shtml)



**Figure 6:** Contribution of different devices to the overall data usage per 3G device in the integrated scenario, 2008–2014

### 1.1: Video streaming and downloads will contribute the largest proportions of total data usage

A more detailed breakdown of the modelled data services reveals the ones that will generate the majority of data usage, as shown in **Figure 7** and **Figure 8**.

In both scenarios, video streaming and downloads will contribute the largest proportions of total data usage, at 56.4% in the *wireless-only scenario* and 48.1% in the *integrated scenario*, in 2014. This is because video services will require a relatively high data rate and will be popular services, being adopted by many users and used for a significant period of time.

#### 1.1.1: 3G operators have not yet needed to be concerned by high increases in 3G traffic volume

Despite the reports of high percentage increases in traffic volume, 3G operators have not yet needed to be concerned, for two reasons:

- mobile data traffic volumes have increased from a very low level
- a significant proportion of users and voice telephony traffic are still supported by 2G (for example, GSM) networks in the vast majority of countries.

## About Unwired Insight

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