



I D C C O U N T R Y B R I E F

THE DIGITAL UNIVERSE IN 2020: Big Data, Bigger Digital Shadows, and Biggest Growth in the Far East — United States

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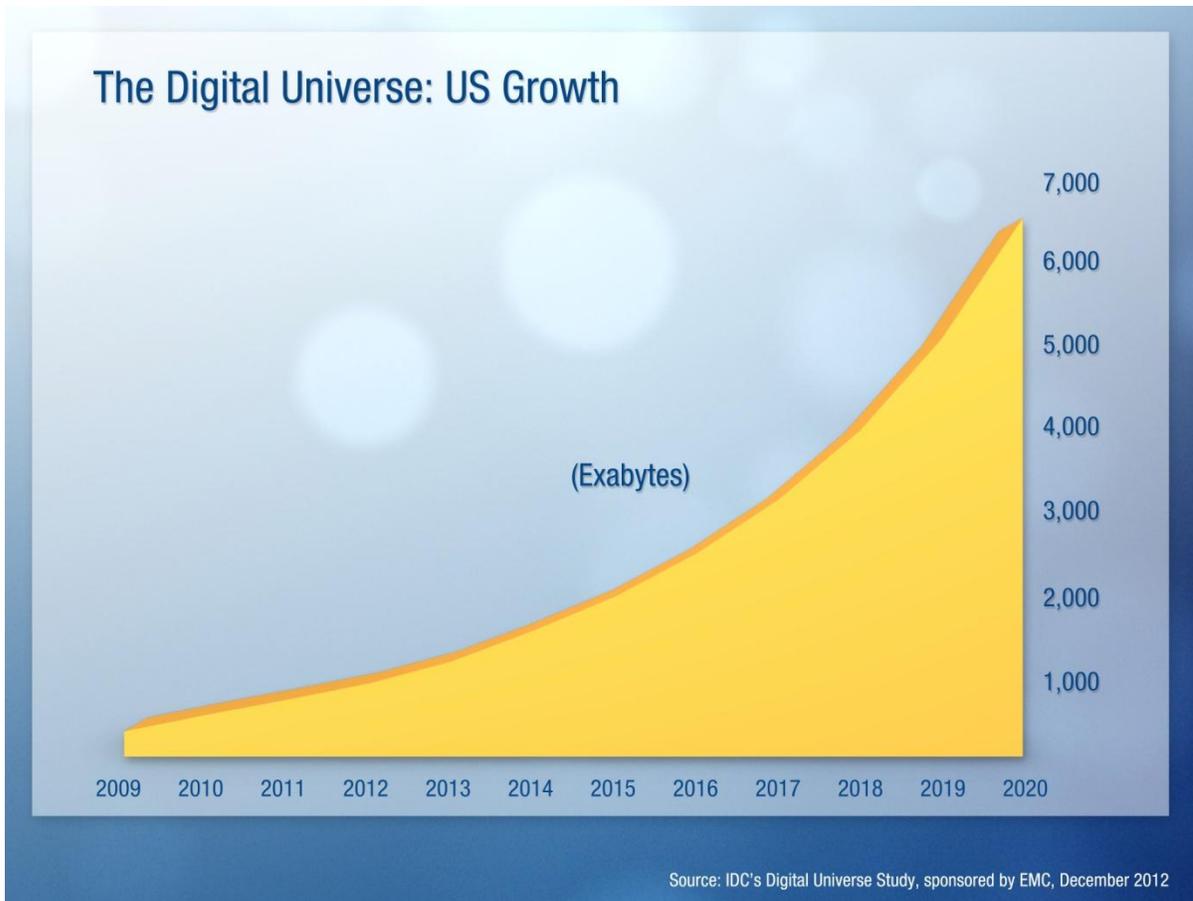
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Content for this paper is adapted from IDC's Digital Universe Study, December 2012, sponsored by EMC. Additional content for the study can be viewed at <http://www.emc.com/leadership/digital-universe/view/index.htm>.

United States Profile

Digital Universe in the United States to Grow Sevenfold Between 2012 and 2020

The digital universe in the United States — the digital bits created, replicated, and consumed each year in the country — is expected to grow from 898 exabytes to 6.6 zettabytes between 2012 and 2020, or more than 25% a year, which means it will double about every three years (see Figure 1).



What's driving this growth?

- Continued growth of Internet usage, social networks, and smartphone adoption
- Falling costs of the technology devices that create, capture, manage, protect, and store information
- Migration from analog TV to digital TV
- Growth of machine-generated data, including security images
- Growth of information *about* information

For instance, the United States now has more PCs installed than it has people, and 75% of the population are Internet users. In 2012, the United States saw 250 million smartphones and 100 million tablets and ereaders in use. China has more TVs than the United States, but the United States consumes more digital TV. India has more cinemas and produces more movies, but the United States watches more movies in digital format. And although the United States has less than 5% of the world's population, it accounts for a third of IT spending. It also leads the world in watching YouTube videos, sending tweets, and using/accessing Facebook.

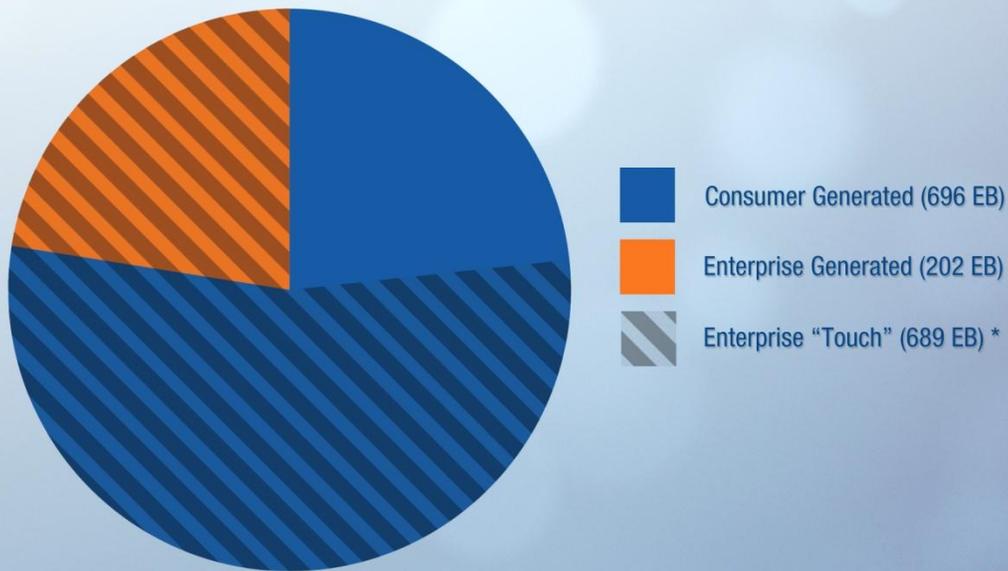
The Consumer Influence

When we first started studying the digital universe, the origin of a majority of the bits within it was the mature markets: In 2005, the United States and Western Europe accounted for 49% of the digital universe. But as Moore's law has made digital technology — computers, smartphones, cameras, TV, movies, industrial equipment — cheaper, the technology has become affordable for more people around the world. Over time, the distribution of the bits within the digital universe by country of origin will more and more closely mirror the distribution of the population. By 2020, the United States and Western Europe will generate only 30% of the bits in the digital universe.

However, in the United States, the contribution of individuals, as consumers or workers, creates a paradox. Enterprises created just 22% of the regional digital universe in 2012 (individuals accounted for the rest); nevertheless, those enterprises had responsibility or liability for 77% of the total (see Figure 2). As a byte travels from one consumer camera phone or mobile device or laptop to another, at some point in its life, it passes through an enterprise-owned network that must keep it secure and protect the privacy of the sender and the receiver.

The Impact of Consumers: 2012

Total Digital Universe (898 EB)

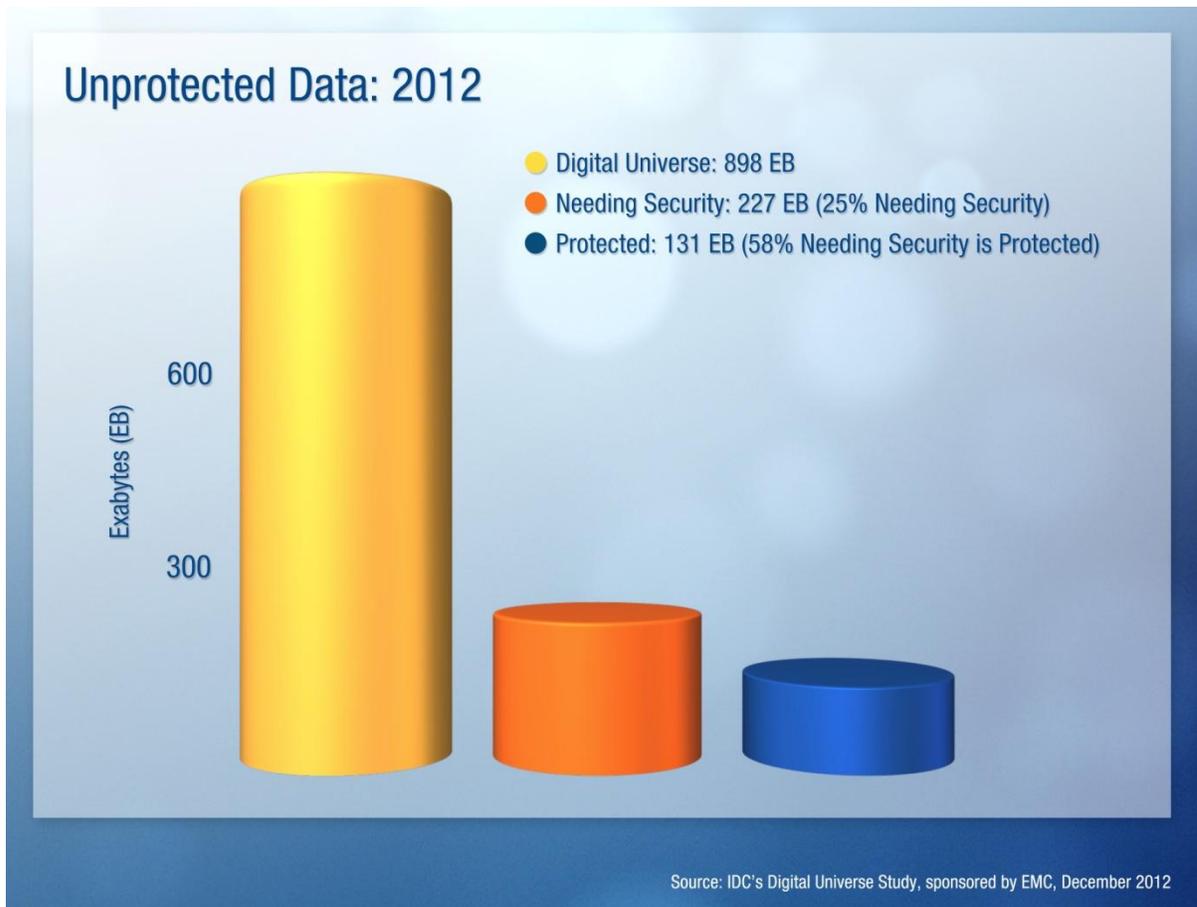


*Enterprise has some liability or responsibility

Source: IDC's Digital Universe Study, sponsored by EMC, December 2012

This responsibility for information security and privacy protection for so much of the digital universe is one of the key challenges for the CIOs, data scientists and architects, governments, and enterprises driving the development of the digital universe.

IDC analysis of the information in the United States' portion of the digital universe by category of information indicates that 25% of the data might need security at some level. At the same time, we estimate that just under 60% of the information needing protection actually is protected (see Figure 3).



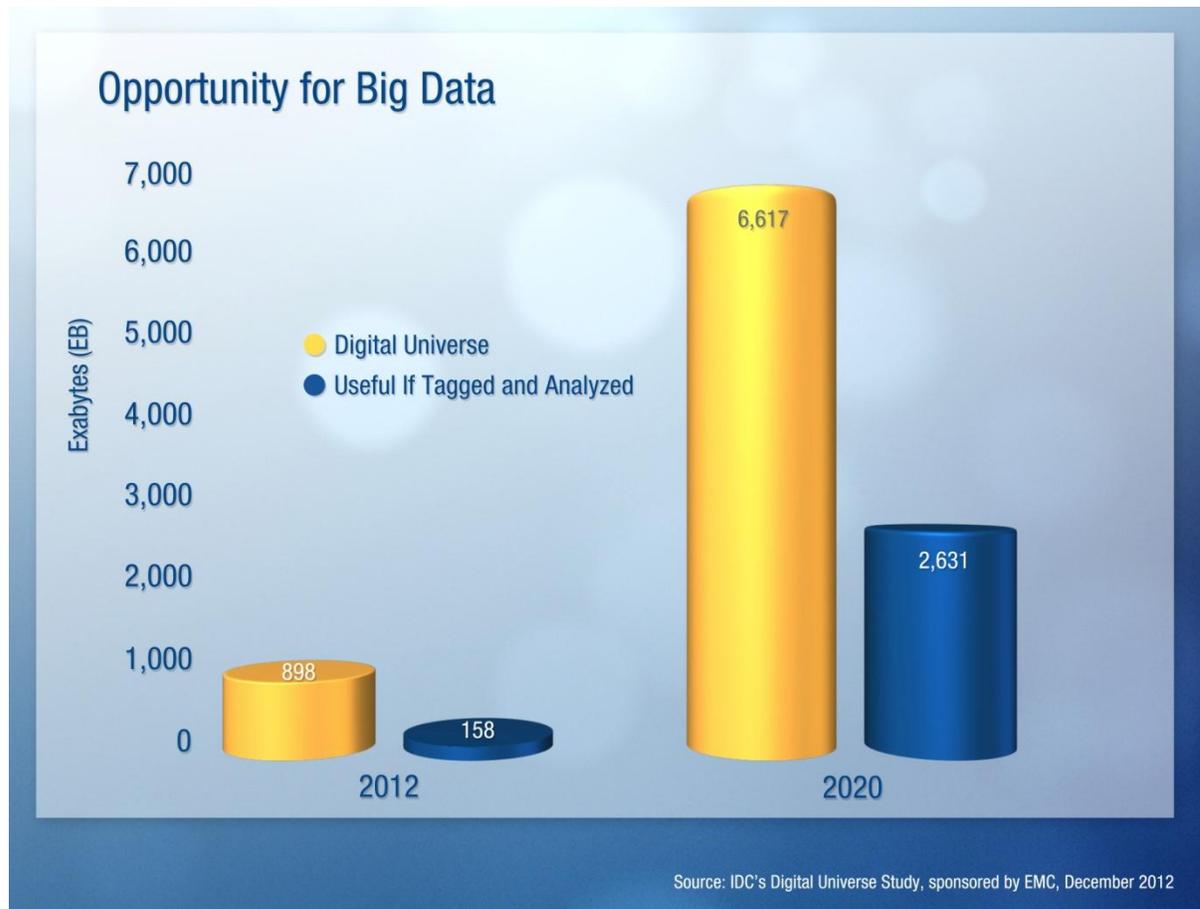
As the years pass, the challenge is clear: to increase information security and privacy protection fast enough and competently enough to keep up with the sevenfold growth of the United States' digital universe.

Opportunity for Big Data

One of the ironies of the digital universe is that as soon as information is created or captured and enters the digital cosmos, much of it is lost. If a lot of that information is not stored (refer back to Figure 1), even more is not tracked or analyzed. Of course, not all of the information would be of value if it *were* tracked, but certainly some of it would.

IDC estimates that in 2012, 18% of the information in the United States' digital universe would be valuable were it tagged and analyzed. We also estimate that less than half a percent is analyzed. We expect the percentage of information in the country's digital universe that would be useful if tagged and analyzed will be much bigger (40%) by 2020 (see Figure 4).

That's 17-fold growth of useful information, which should be an inspiration for the adoption of Big Data technologies and practices.



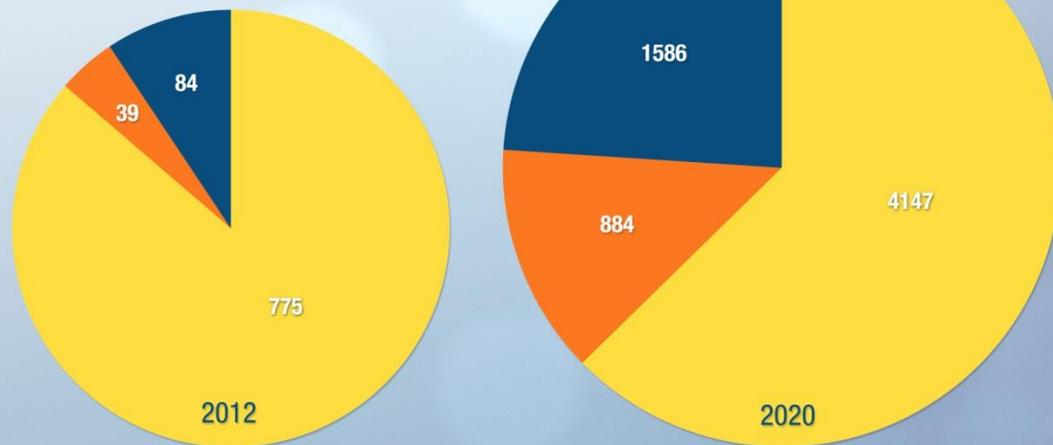
Impact of Cloud Computing

As the digital universe in the United States doubles every three years — compared with single-digit yearly growth in the number of IT professionals — the complexity of managing, securing, storing, and extracting value from it continues to increase considerably. Dealing with this complexity implies a new economy of scale revolving around specialties — an incentive for cloud computing.

Although cloud computing is in its early days, it is already having an impact on the digital universe. IDC estimates that in 2012, 14% of the United States' digital universe was in some way "touched" by the cloud — stored, transmitted, or processed. By 2020, that percentage could be as high as 37% (see Figure 5).

The Digital Universe and the Cloud

- Not "Touched" by the Cloud (EB)
- Stored in the Cloud (EB)
- Additional "Touched" by the Cloud (EB)*



*Enterprise has some liability or responsibility

Source: IDC's Digital Universe Study, sponsored by EMC, December 2012

Call to Action

In just five years, the United States' share of the digital universe will be bigger than the entire digital universe in 2012. The United States' share of the digital universe will be many times more valuable than it is today — and also many times more volatile. An exponentially larger number of bytes will need information security, many more systems will need real-time responses, and many more demands for reliability and speedy access will be made of the IT managers, CIOs, data scientists, and chief security officers that manage the actual digital universe.

Technology will evolve — algorithms for automatically creating metadata for unstructured data; Big Data software that enables analysis of large, diverse data sets; optimization software for real-time systems; and, of course, information management, data deduplication, and cybersecurity tools. However, the right technology tools will be necessary but not sufficient for the taming of the United States' digital universe. It will take new management practices, user education, and savvy policies. This is the where technologists must rely on support from business units, government, and consumers, and it is likely an area with bigger challenges than the technological realm.

No country, no region, no company can halt the expansion of the digital universe. One can only prepare as best as possible.

A B O U T T H I S P U B L I C A T I O N

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