# CLOUD ADOPTION & RISK REPORT

## Q4 2014

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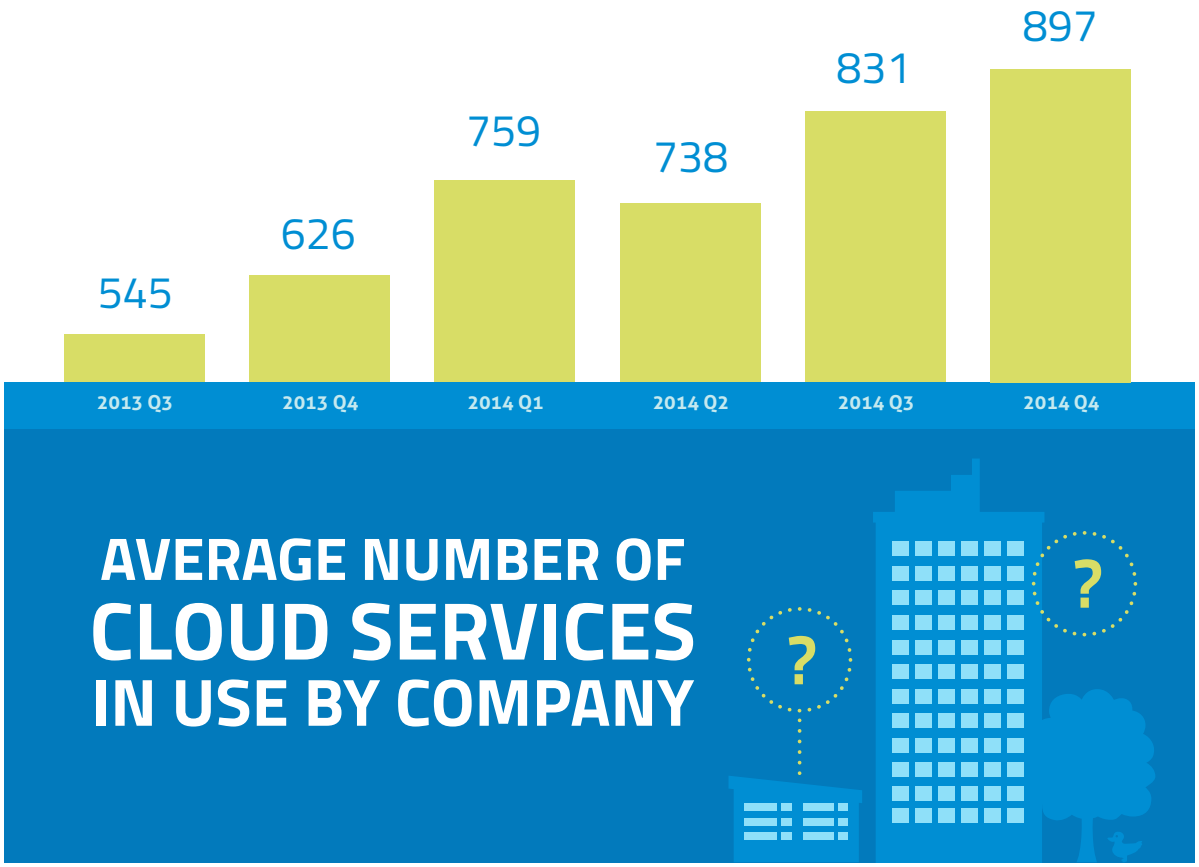
# INTRODUCTION

There are more cloud services available than ever before, and the average number of cloud services used in the workplace reached a new high last quarter. This usage includes both sanctioned cloud services (aka sanctioned IT) and shadow cloud services (aka shadow IT), which typically include services adopted by the lines of business and services adopted by individuals. Both sanctioned IT and shadow IT take advantage of the cost benefits of the cloud as well as the feature sets not available in legacy applications. However, there is so much hype on the capabilities of what the cloud can provide that it can be difficult to understand how people are actually using cloud services, what data they store in them, and what risks exist within these new platforms.

To better understand cloud usage during this period of rapid innovation and change, Skyhigh publishes a quarterly Cloud Adoption & Risk (CAR) Report. What makes our report unique is that we base our findings on actual usage data rather than surveys that ask people for their opinions or best guesses. In this quarterly report, we've quantified for the first time how much sensitive data is stored in which cloud services, where it is shared outside the company, and the growing problem of compromised login credentials that are bought and sold on the darknet. As 2014 comes to a close, we'll also review trends that shaped cloud adoption over the last year. We hope you enjoy the data in our 6th quarterly report!

# OVERVIEW OF CLOUD ADOPTION AND RISK

The Q4 report is based on data from 15 million worldwide users at companies that span all major industries across the Americas, EMEA, and Asia Pacific. This quarter, the average number of cloud services in use at each company grew 8% from Q3 2014, and 43% from Q4, 2013 to 897 services. That number is 10-20 times higher than what IT executives expect; especially considering that many of these cloud services are adopted by employees acting on their own, without the knowledge of the IT department.



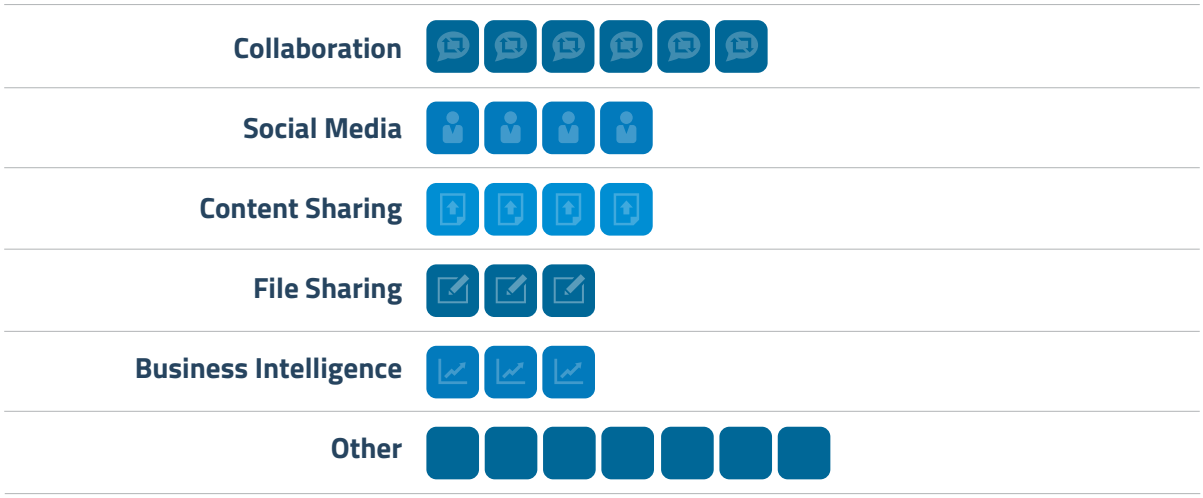

Looking back at our Q4 2013 report, we wanted to compare how usage across categories changes. The average number of services in use increased for every category. Since Q1 2014, the fastest growing category based on the growth in number of services is development (e.g. GitHub, SourceForce, etc.), which grew 97% in the past year. The second fastest growing category is collaboration (e.g. Microsoft Office 365, Gmail, etc.), which grew 53% despite already having a high number of services in use. The table below summarizes growth in the average number of cloud services in use per company from Q4 2013 to Q4 2014.

| | Q4 2013 | Q4 2014 | Growth |
|---|---|---|---|
| Collaboration | 91 | 139 | 53% |
| Development | 24 | 47 | 97% |
| File sharing | 37 | 45 | 20% |
| Content sharing | 37 | 39 | 6% |
| Business intelligence | 15 | 18 | 18% |
| Social media | 23 | 27 | 17% |
| Tracking | 23 | 24 | 4% |

Looking at usage another way, the average employee now uses 27 different cloud services at work, including six collaboration services, four social media services, and three file-sharing services. The use of multiple services in each category shows that a single dominant player has yet to emerge in many categories. Across categories, the market for cloud services is rapidly evolving as new players enter the market, existing companies are acquired, and companies invest in new product capabilities.

The average employee uses

# 27 apps at work



# CALCULATED RISK

The risk presented by cloud providers varies widely. Across all cloud services available, just 9.4% achieved the highest rating of "enterprise-ready" by Skyhigh's CloudTrust Program. The good news is that cloud providers invested heavily in security over the last year, and a much larger number now offer more robust security features and certifications. 1,459 services (17%) provide offer multi-factor authentication, as opposed to 705 last year; 533 (5%) are ISO 27001 certified, as opposed to 188 last year; and 1,082 (11%) encrypt data at rest, as opposed to 470 last year.

Clearly, there is still a long way to go as some of the biggest names in cloud computing (including Gmail and PayPal) can store sensitive, personally identifiable information, including payment card data and banking information, as unencrypted data. Another service that doesn't encrypt data stored at rest is eBay, which suffered one of the biggest data breaches of 2014 when 145 million account credentials were stolen.

## TOP 10
## SERVICES THAT...

### CLAIM OWNERSHIP OF DATA UPLOADED TO THEM

1. Prezi
2. SourceForge
3. eFolder
4. Pastebin
5. myCapture
6. Placed
7. Lasso CRM
8. Shoology
9. Zapier
10. LeapFILE

### DON'T ENCRYPT AT REST

1. Facebook
2. Twitter
3. YouTube
4. TubeMogul
5. LinkedIn
6. Gmail
7. eBay
8. Paypal
9. Hotmail
10. AOL Mail

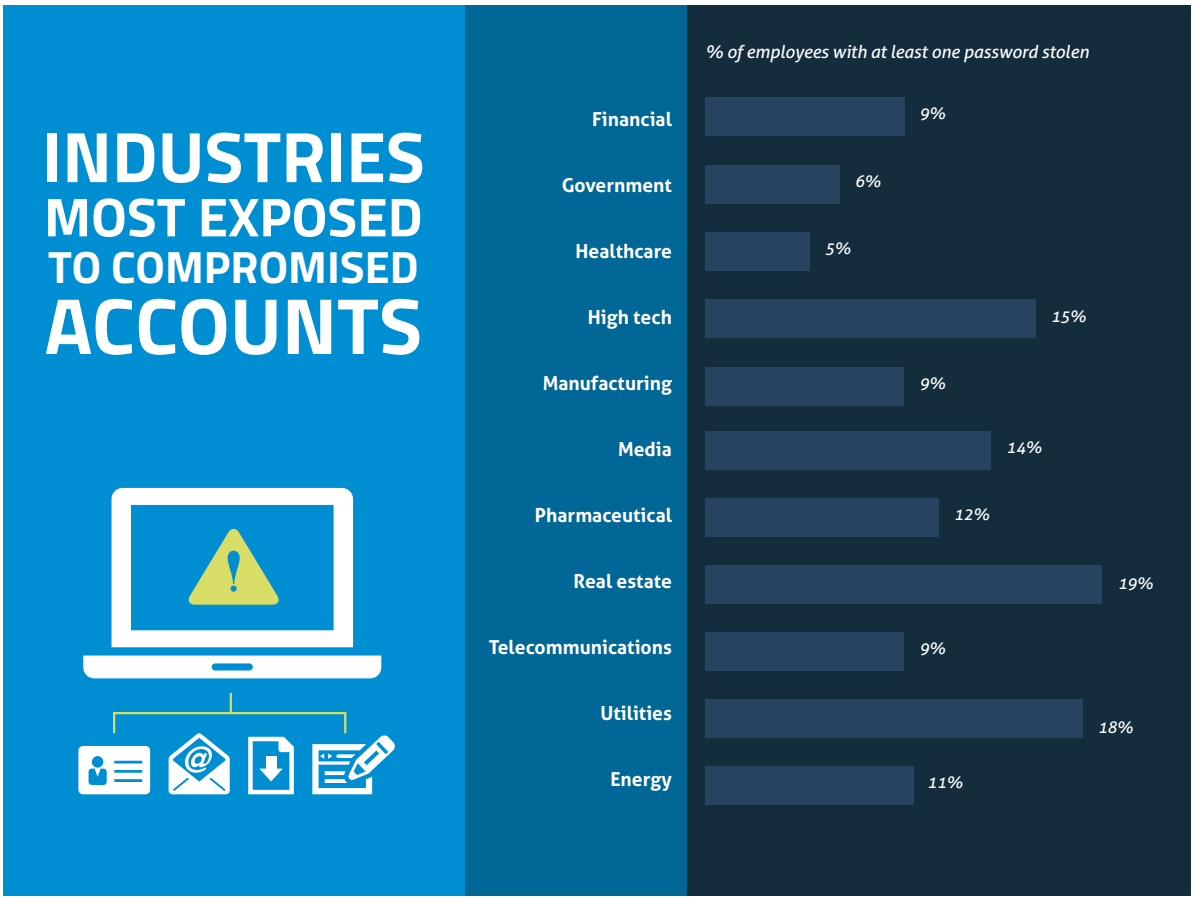
Beyond file sharing, 4% of fields in CRM or IT management applications contain sensitive PII such as policy number, driver's license number, date of birth, or age, or PHI such as medical record number, health plan beneficiary number, or patient account numbers.

For companies that have extended their DLP policies to the cloud, we analyzed actions triggered due to policy violations, and 60% triggered an email alert to the violator/end-user. The next most common action, at 31%, was to quarantine or tombstone a file uploaded containing sensitive information. This is followed closely by changing sharing permissions – 26% of events triggered a modification of permissions to restrict sharing with users outside the company. Lastly, 13% of events resulted in the encryption of sensitive data.

# COMPROMISED IDENTITIES

In 2014, there were more software vulnerabilities discovered and more data breaches than in any year on record. Following one of the largest breaches of the year, eBay asked 145 million users to change their passwords after attackers stole millions of login credentials. The theft of a username and password in the cloud era is significant because an attacker can gain access to all the data that user has access to in that service. That could include their own data as well as a lot of company data as well. Troublingly, a study by Joseph Bonneau at the University of Cambridge showed that 31% of passwords are re-used in multiple places.

The implication here is that, for 31% of compromised identities, an attacker could not only gain access to all the data in that cloud service, but potentially all the data in the other cloud services in use by that person as well. Considering the average person uses three different cloud file-sharing services, and 37% of users upload sensitive data to cloud file-sharing services, the impact of one compromised account can be immense. We investigated this occurrence by looking at anomaly detection data that shows an attacker attempting to login to a compromised account and cross-referencing that with data on user identities for sale on darknet.




We found that 92% of companies have users with compromised identities. At the average company, 12% of users have at least one account that has been compromised. At the time of our analysis, we found that some accounts had been updated with new passwords, while many others remained active with compromised identities. The availability of stolen credentials online is staggering. Anecdotally, we identified one Fortune 500 company with a staggering 10,156 compromised identities. Despite all industries being affected, real estate, utilities, and high-tech firms were particularly at risk. Until more cloud providers enable multi-factor authentication, we recommend users create a unique, strong password for each cloud service and change them regularly.

# TOP 20 ENTERPRISE CLOUD SERVICES LIST

The cloud has created a new wave of enterprise software that is not only faster to develop, easier to deploy, and more cost effective, but also offers innovative features not found elsewhere. That's because much of the innovation today is happening in software delivered via the cloud, and for many customers, the cloud is mainstream. These companies don't use Salesforce because they think it's the best cloud-based CRM, but rather because it's the best CRM, period.


1. Amazon Web Services
2. Microsoft Office 365
3. Salesforce
4. Cisco WebEx
5. ServiceNow
6. Yammer
7. Concur
8. Box
9. Zendesk
10. LivePerson
11. SuccessFactors
12. Workday
13. GoToMeeting
14. Oracle Taleo
15. OneDrive
16. Host Analytics
17. NetSuite
18. SAS OnDemand
19. BMC Service Management
20. OpenText BPM

Amazon Web Services continues to dominate the list this quarter, followed by services from industry giants Microsoft, Salesforce, and Cisco. Large players have bought their way into the cloud through acquisitions, as evidenced by the number of big companies represented by their multi-billion dollar acquisitions such as Yammer (acquired by Microsoft for $1.2B), Concur (acquired by SAP for $8.3B), SuccessFactors (acquired by SAP for $3.4B), and Taleo (acquired by Oracle for $1.9B). Representing a new generation of enterprise software players, four companies in the list went public in the last 36 months including ServiceNow, Box, Zendesk, and Workday.

# TOP 20 CONSUMER APPS IN THE ENTERPRISE

In addition to the enterprise cloud services that are generally sanctioned and procured by the IT department, employees are also bringing a wide variety of consumer apps to work with them. Today, consumer apps frequently offer features that are as good if not better than those found in enterprise software, reversing the long-standing trend in the software industry where enterprise organizations had more advanced technology than the average consumer. While employees sometimes use these apps for personal use, they frequently use these apps for business use as well, which can put the security and compliance of corporate data at risk.

1. Facebook
2. Twitter
3. YouTube
4. Linkedin
5. Pinterest
6. Gmail
7. Flickr
8. Myspace
9. Tumblr
10. Instagram
11. Yahoo! Mail
12. Dropbox
13. Google Drive
14. Photobucket
15. Slideshare
16. Apple iCloud
17. Shutterfly
18. Sina Weibo
19. VK
20. Spotify


While much has been written about the consumerization of enterprise IT, a new phenomenon is the enterprization of consumer IT. Facebook, Dropbox, Google Drive, and Gmail are all offered in enterprise versions that provide greater controls for businesses. And many consumer apps have professional uses including LinkedIn for sales and recruiting, and YouTube, Twitter, Instagram, and Pinterest for social media marketing.

# TOP 10 FILE-SHARING, COLLABORATION, AND SOCIAL MEDIA SERVICES

A recent Cloud Security Alliance survey[2] asked IT professionals about requests they receive from end-users. An overwhelming 79% of respondents said they regularly receive requests for new cloud services. File sharing and collaboration were the most requested, with 80% of survey respondents indicating they received requests for services in these categories, followed by social media at 38%. In this section, we review the trends that shaped usage in each of these categories over the last year.

## FILE-SHARING

The average company now uses 45 file-sharing services, and individuals use three different services in the category on average. Over the last year Dropbox and Google Drive have remained the top services based on usage. The use of enterprise-ready Box has increased while Yandex.Disk's ranking, which does not encrypt data at rest, has declined relative to others. Citrix ShareFile has risen to 5th from 8th in the last two quarters.


[2] Cloud Security Alliance "2015 Cloud Adoption Practices and Priorities Survey"

## COLLABORATION

The average company uses a dizzying 139 collaboration services, and employees regularly use 6 collaboration services. Anecdotally, logging into multiple applications to collaborate across teams introduces friction and impedes collaboration, so companies that actively consolidate onto fewer platforms could see improvements in productivity and employee adoption. Microsoft and Google dominate the list, accounting for 5 of the 10 services listed. Yammer usage increased this year relative to others, while Prezi declined in the rankings.

## SOCIAL MEDIA

The average company uses 27 different social media services, and the average user regularly uses four social media services. While Facebook, Twitter, and LinkedIn have held the top three spots consistently, there is more movement from the international social networks.

# FASTEST GROWING CLOUD SERVICES

From an entrepreneur's standpoint, launching a new service in the cloud and acquiring customers is very different from building on-premise software. From idea to launch, cloud-enabling entrepreneurs can reach a global market in weeks or months instead of years. From the perspective of the end-user, there is an unprecedented amount of choice, and people are inclined to use things that help them while discontinuing their use of things that either don't help them or are inferior to other solutions. It is this idea that led us to think that, by measuring usage patterns across thousands of cloud services, we could help identify the up-and-coming solutions that are on the path to mainstream adoption based on their growth rates.


The fastest-growing apps of Q4 2014
Quarterly growth rate in users

We calculated growth rates for all cloud services, based on the number of active users from Q3 to Q4 of 2014 and ranked them by their quarterly growth rate. The fastest-growing cloud services have doubled the number of users in a single quarter, and if they continue their growth, they could rival more established players in the years to come. Todoist and ToutApp have now appeared on the fastest growing list two quarters in a row. Demonstrating that a company can deliver features in high-demand by end-users while also investing in security, Projectplace made the list and also received a rating of Skyhigh Enterprise-Ready because it satisfies the most stringent security and compliance requirements.

## ABOUT SKYHIGH NETWORKS

Skyhigh Networks, the cloud security and enablement company, helps enterprises safely adopt cloud services while meeting their security, compliance, and governance requirements. Over 350 enterprises including Aetna, Cisco, DIRECTV, HP, and Western Union use Skyhigh to gain visibility into all cloud services in use and their associated risk; analyze cloud usage to identify security breaches, compromised accounts, and insider threats; and seamlessly enforce security policies with encryption, data loss prevention, contextual access control, and activity monitoring. Headquartered in Cupertino, Calif., Skyhigh Networks is backed by Greylock Partners, Sequoia Capital, and Salesforce.com. For more information, visit us at **www.skyhighnetworks.com** or follow us on Twitter **@skyhighnetworks**.

# UNCOVER SHADOW IT

If you'd like to learn the scope of Shadow IT at your company, including detailed statistics profiled in this report, sign up for a complimentary cloud audit

**REQUEST COMPLIMENTARY CLOUD AUDIT**

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"With Skyhigh we discovered a wide range of services, allowing us to understand their associated risks and put in place policies to protect corporate data."

CISCO

**Steve Martino**
*VP Information Security*