IT Services Performance Report

January – December 2015

Prepared by: UCD IT Services
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Seamus Shaw
Chief Technology Officer

Contents

Background

We have a series of measures in place to monitor IT performance and service availability, in order to provide feedback on the value of investment and to quantify the improvements in levels of service. The first full year of statistics was published in January 2004. This report is our twelfth full year and contains 2015 results and key comparisons with previous years.

The IT plan set targets for availability of services to be achieved over the period of time. These targets are based on standard industry measures of IT services i.e. "uptime" of any given service within its operational window.

A set of 11 distinct IT services were measured on a weekly basis (12 hour daily window - 9am to 9pm, over a 5 day working week) in 2015. Any failure in a service is logged and the time interval to full recovery is recorded. This "% availability" of the service is averaged against a Quarterly availability target of 99.5%

The Priority 1 services reflect the demands and IT priorities of the University, and change from time to time. In 2014 Wireless and UCD Website were added, and Remote Sites, Staff Printing and Student Printing were removed as Priority 1 services. Network was renamed as Campus Network and expanded to include Blackrock, in addition to Belfield.

For the purposes of this report we have compared the 2015 statistics to the yearly statistics dating back to 2012 (where data available).

Annual Service Levels 2012 and onwards

The graph below shows the comparison from 2012 onwards over the full year.
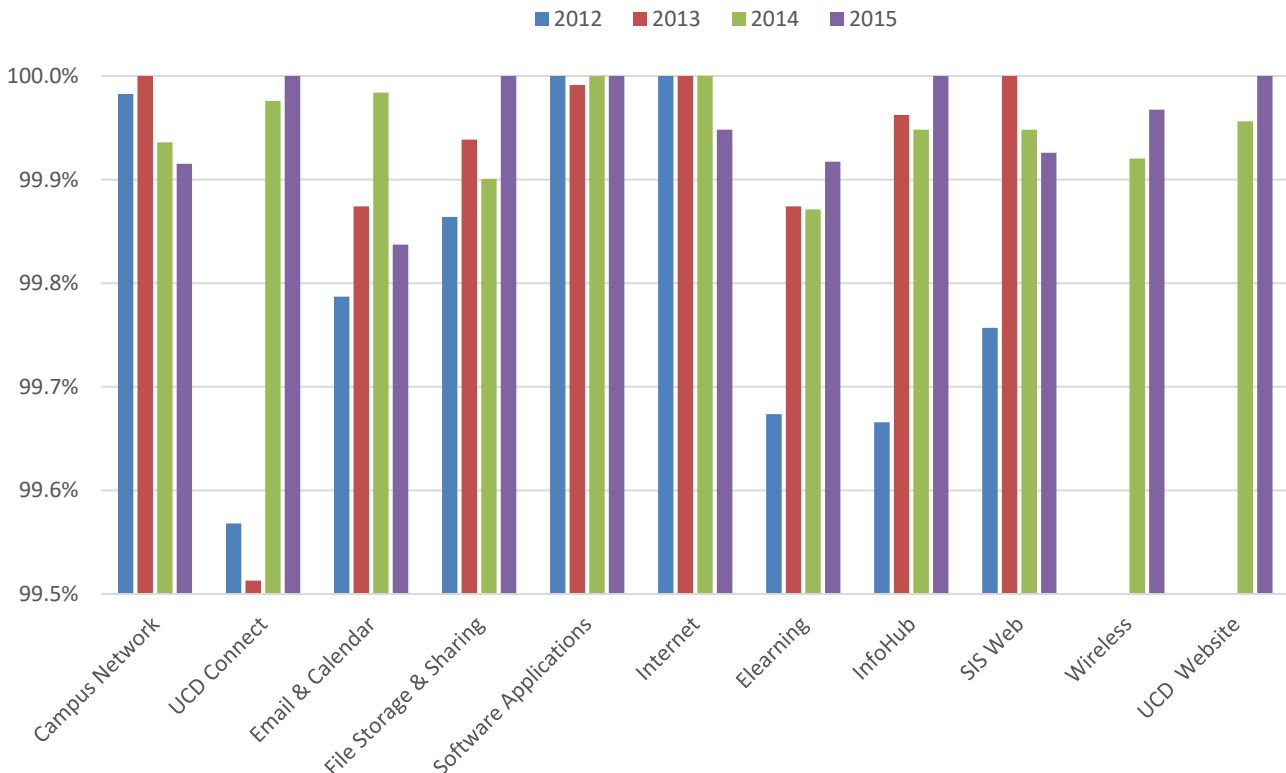
Quarterly Service Availability

The graph below shows the quarterly statistics for each service for 2015. The target for service availability is 99.5%. During 2015 there was 1 breach in total.

Service Availability by Quarter

- Q1 2015
- Q2 2015
- Q3 2015
- Q4 2015

Summary of Quarterly Service Breaches

Email & Calendar, Quarter 1. In March there was a 3hour 45minute performance degradation of Google Email service for staff and students.

Frequency of Service Interruption

In addition to the monthly and quarterly availability measures, a count of service breaches on a weekly basis by service is also recorded i.e. any service which breached 99.5% availability in a given week contributed to the count.

This measure is used as an indicator of the frequency of interruption to services.

Count of Weekly Service Breaches (<99.5% availability)
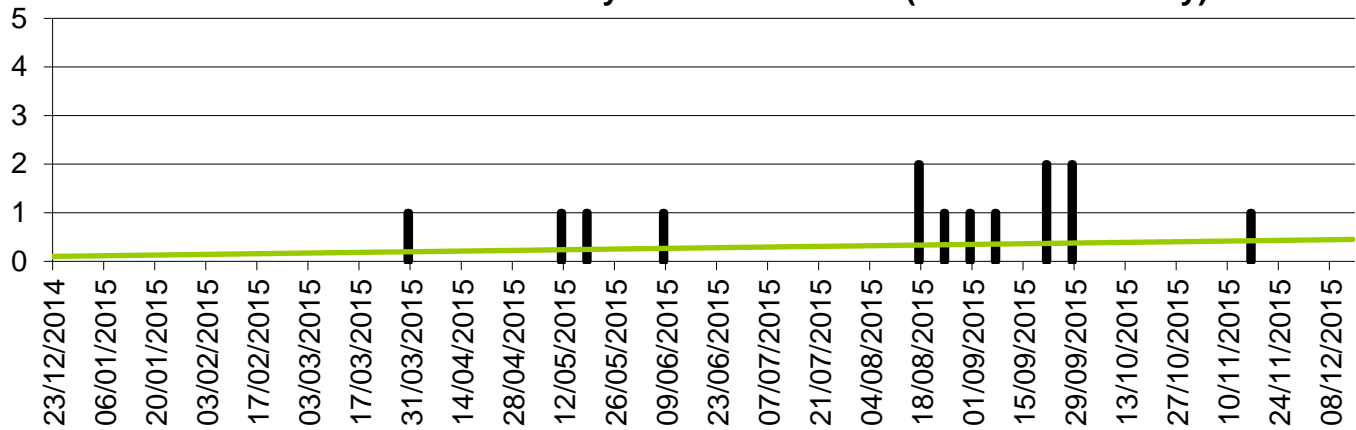
The total number of weekly service breaches for 2015 was 11

Service breaches are either as the result of a single outage exceeding our target SLA, or are as a result of series of shorter outages that when are combined breach the weekly SLA target.

The total number of service outages for 2015 was 18.

Annual Comparison of Weekly Breaches

	2015			2014		2013		2012	
	Number of discrete outages	Number of breaches	Total duration (Mins)	Number of breaches	Total duration (Mins)	Number of breaches	Total duration (Mins)	Number of breaches	Total duration (Mins)
Campus Network	2	2	179	1	120	0	0	1	30
UCD Connect	0	0	0	1	30	3	729	5	740
Email & Calendar	5	4	396	1	30	2	210	3	368
File Storage & Sharing	0	0	0	2	157	1	85	3	230
Software Applications	0	0	0	0	0	0	15	0	0
Internet	3	1	53	0	0	0	0	0	0
Elearning	9	5	324	2	238	2	257	1	564
InfoHub	0	0	0	2	97	1	65	3	558
SIS Web	2	1	128	2	97	0	0	3	420
Wireless	1	1	75	3	109	-	-	-	-
UCD Website	0	0	0	3	405	-	-	-	-
Other Services						4	1114	7	1127
Total	22	14	1155	17	1283	13	2475	26	4037

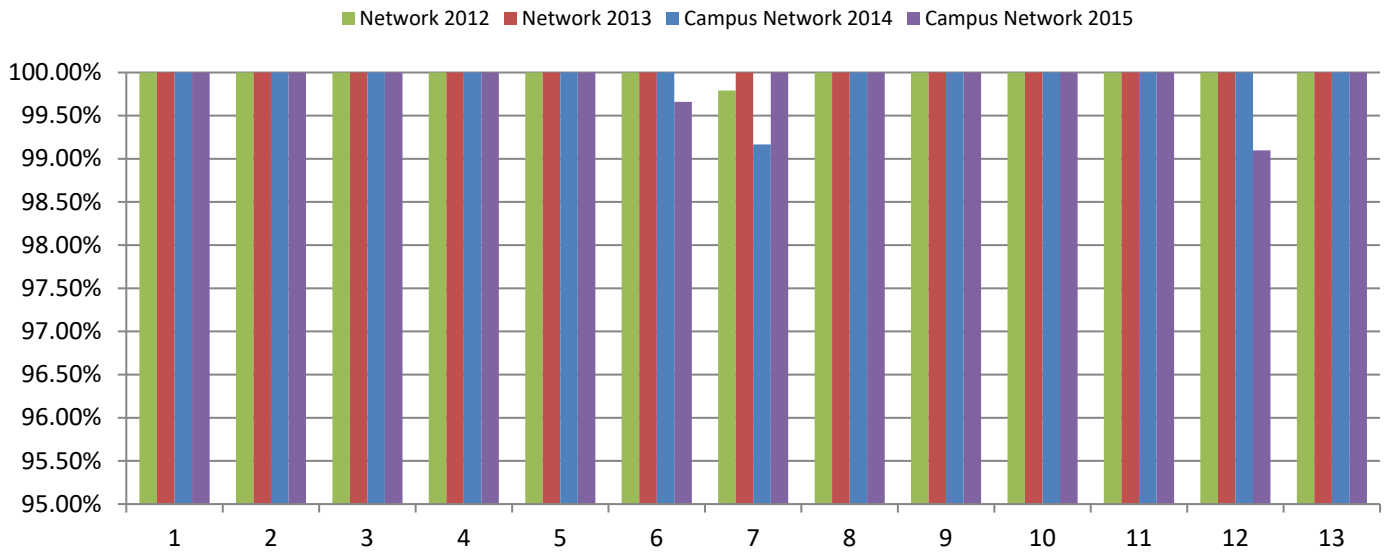The comparison with 2014 shows downtime decreased by 10%, and the number of breaches decreased by 17.6%.

Annual Campus Network Availability

Campus Network availability is one of the most significant factors in overall service performance. It measures the availability of the network between all buildings on the Belfield and Blackrock campuses.

Total Annual Campus Network Downtime: 1323 Minutes in 2004
1075 minutes in 2005
256 minutes in 2006
0 Minutes in 2007
0 Minutes in 2008
0 Minutes in 2009
170 Minutes in 2010
353 Minutes in 2011
30 Minutes in 2012
0 Minutes in 2013
120 Minutes in 2014
179 Minutes in 2015

The annual availability level for 2015 was **99.92%**.

The graph below shows the monthly availability comparison for 2012 onwards.

■ Network 2012 ■ Network 2013 ■ Campus Network 2014 ■ Campus Network 2015

Summary and Overall Trends

General	**Decrease** in service breaches in 2015 over previous year.
Campus Network:	**Service Level met for all Quarters.** There were two outages for the Campus Network during 2015. In Week 24 there was a 49 minute outage for the Blackrock Campus due to a fibre break. And in Week 47 there was a 130 minutes outage across the UCD campus due to a failure of the local DNS infrastructure.
UCD Connect:	**Service Level met for all Quarters**
Email & Calendar:	**One Service breach in Quarter 1.** There was one outage for the Email & Calendar service in 2015. In Week 14 there was a 225 minutes performance degradation caused by infrastructure issues within Google. Additionally access to Email and Calendar was impacted by outages on the Single Sign On infrastructure. See below for full details of Single Sign On outages.
File Storage & Sharing:	**Service Level met for all Quarters**
Software Applications:	**Service Level met for all Quarters**
Internet:	**Service Level met for all Quarters.** There were three outages for the Internet link in 2015. In Weeks 17, 20, and 47, outages totalling 53 minutes due to HEAnet routing issues.
eLearning:	**Service Level met for all Quarters.** There were five outages on the remotely hosted eLearning platform in 2015. Week 4, a 2 minute outage due to DDoS attack at the Blackboard hosting centre. Week 21, 48 minutes, unidentified issues at the Blackboard hosting centre. Then in Week 36 there were 3 outages. Two of the outages (86 minutes) were due to Blackboard incorrectly applying updates. The third outage was due to routing issues between the Blackboard hosting centre and Academic sites across Europe. Additionally access to eLearning was impacted by outages on the Single Sign On infrastructure. See below for full details of Single Sign On outages.
InfoHub:	**Service Level met for all Quarters**
SIS Web:	**Service Level met for all Quarters.** There were two outages in 2015. Both outages occurred in Week 35, totally 128 minutes, due to a hardware fault on the Banner cluster.
Wireless:	**Service Level met for all Quarters.** There was one outage in 2015. In week 37, a 75 minutes outage was caused by a hardware fault in the

	networking equipment.
UCD Website:	**Service Level met for all Quarters** ■

Summary of Additional Services

Single Sign On:
Single Sign On provides a common unified access point to a number of services, including the Priority 1 services of eLearning and eMail and Calendar. So during SSO outages and performance degradations, these services are impacted.

There were four outages in 2015 for the Single Sign On Service.
In Week 34, a 95 minute outage was due to managed service provider incorrectly applying updates.
And in Weeks 39 and 40 there were two serious degradations in performance, 30 minutes and 10 minutes in duration, due to localised high I/O (disk) issues.

Data Centre:
UCD operates two data centres, with services distributes across both, to provide resilience, and business continuity.

In Week 37, there was a 75 minute Data Centre outage, due to an electrical transfer switch failing to operate as expected during a power outage across most of South Dublin. A number of Priority 1 services were impacted by this failure, many beyond the initial 75 minute power loss. However all services were recovered outside of our measurement window, and so are not reflected as service breaches or outages.

The root cause of the failure of the transfer was been identified, and was due to the electrical line fault exceeded the set safety parameters of the data centre's main electrical board's transfer switch.

Individual 4 Week Period Service Availability – 2015

Detailed history for 2015 together with quarterly comparisons over the four year period 2012 to 2015 are provided on the following pages.

Campus Network
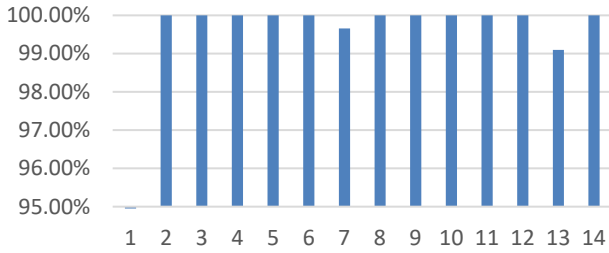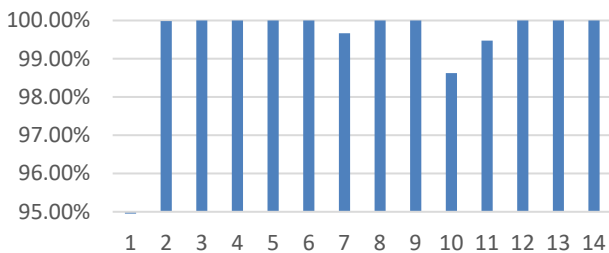
UCD Connect
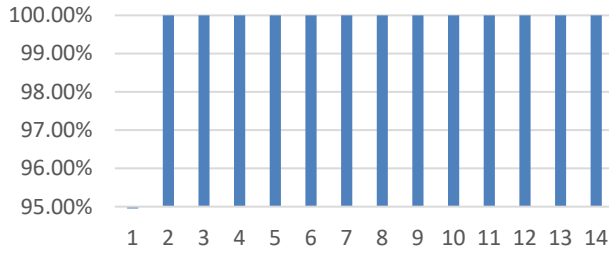
Email & Calendar
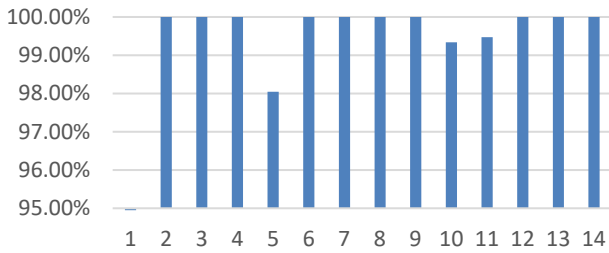
File Storage & Sharing
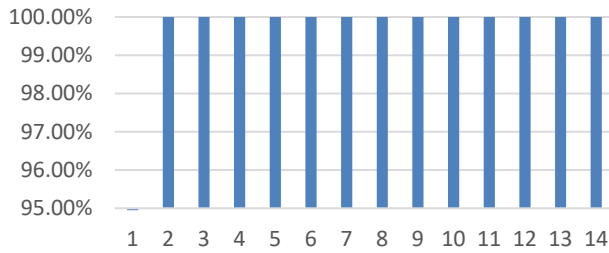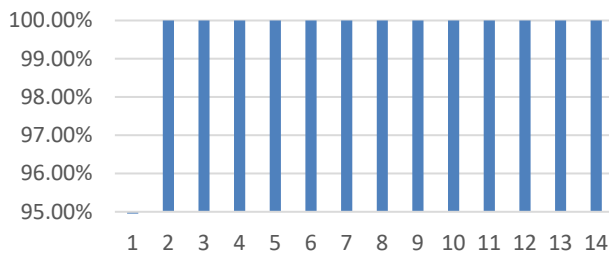
Software Applications
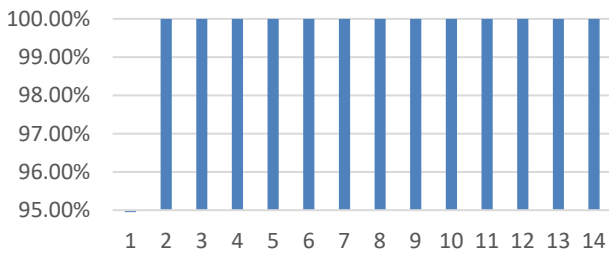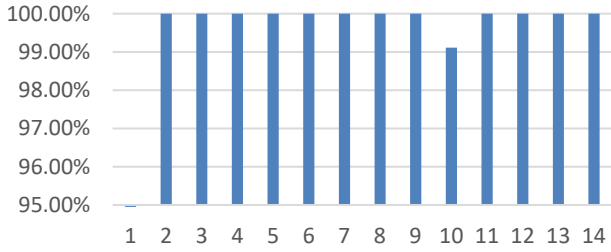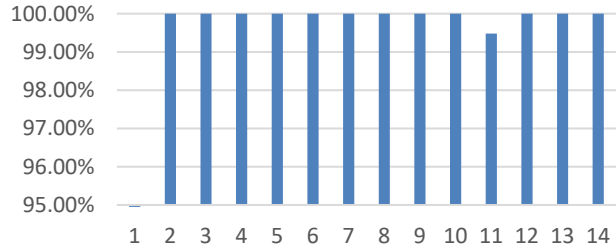
Internet
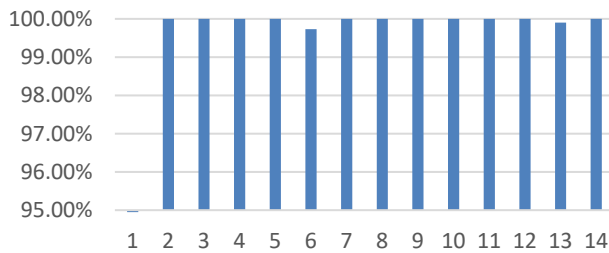
Elearning

InfoHub

Individual 4 Week Period Service Availability – 2015 (cont.)

SIS Web

Wireless Services

UCD Website
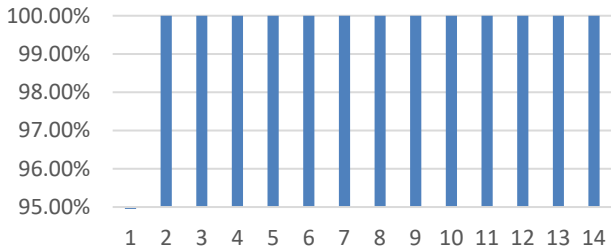
Individual Quarterly Service Availability – 2012 – 2015

Campus Network
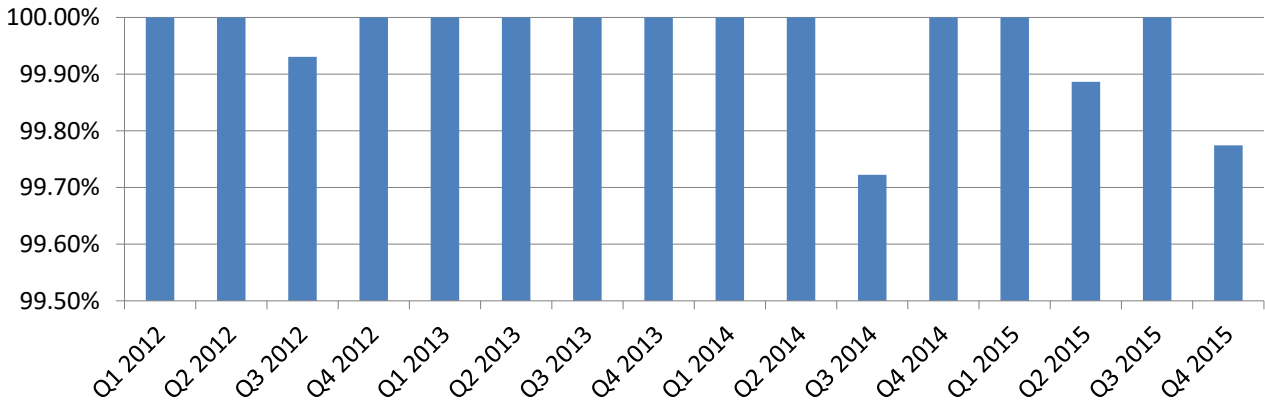
UCD Connect
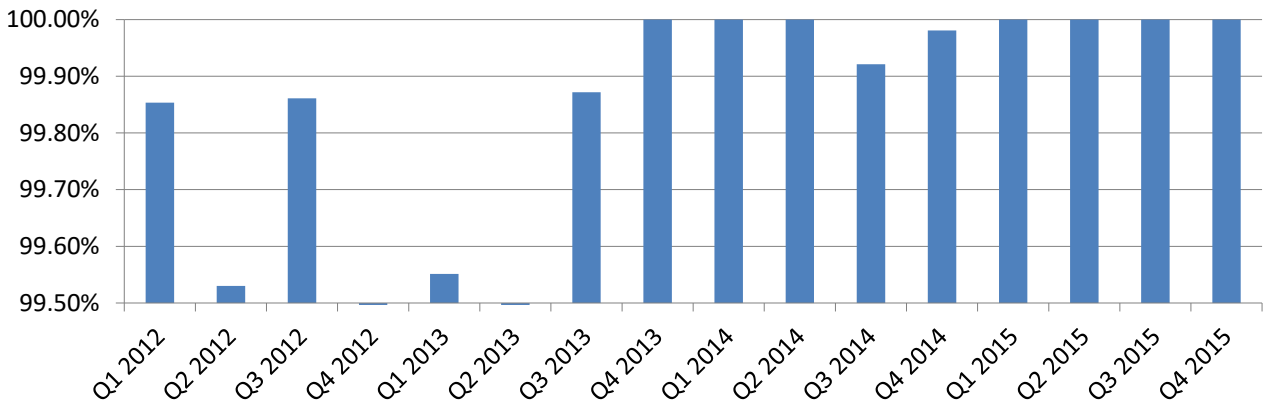
Email & Calendar
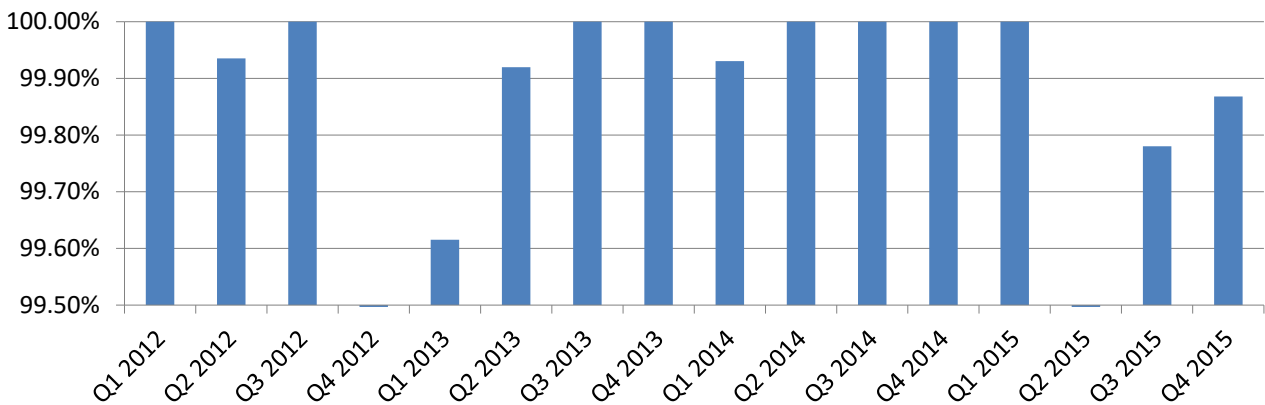
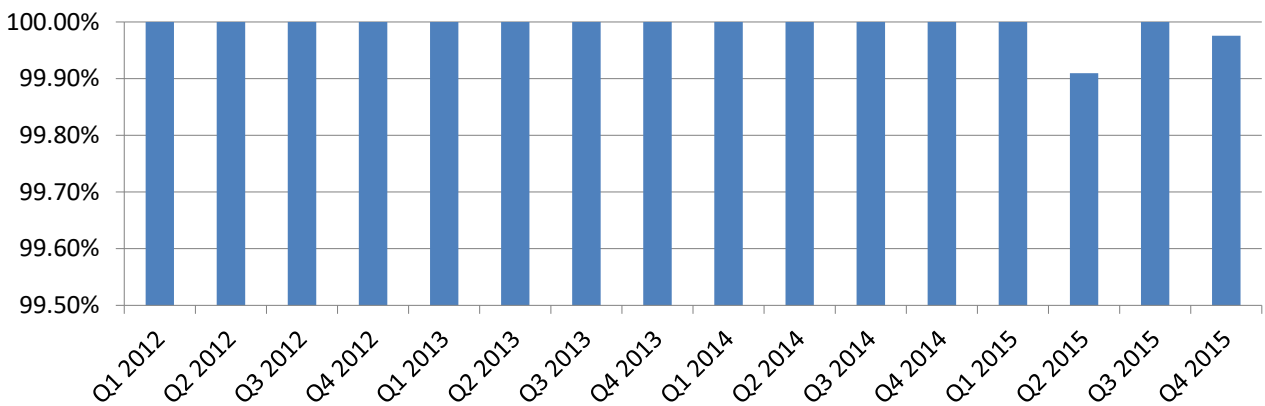## Individual Quarterly Service Availability – 2012 - 2015 (cont.)

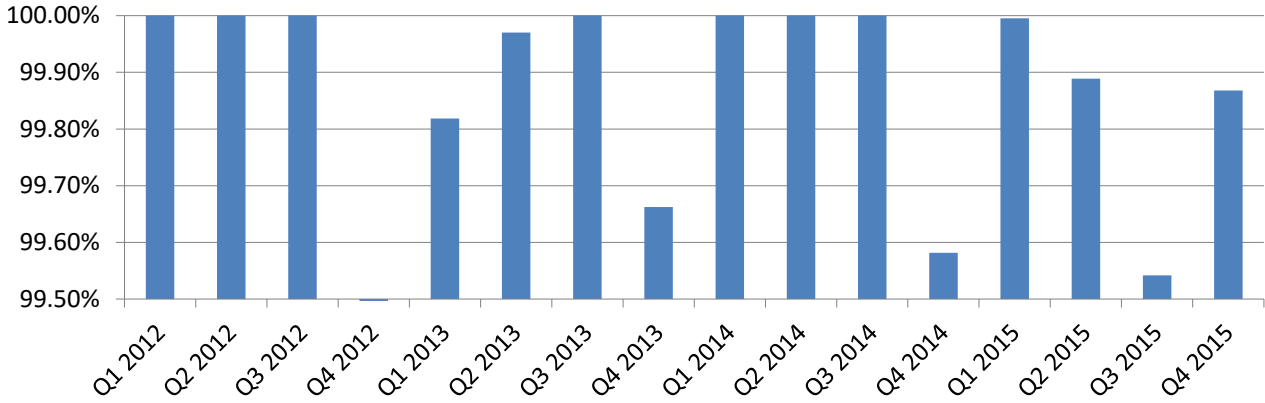### File Storage & Sharing
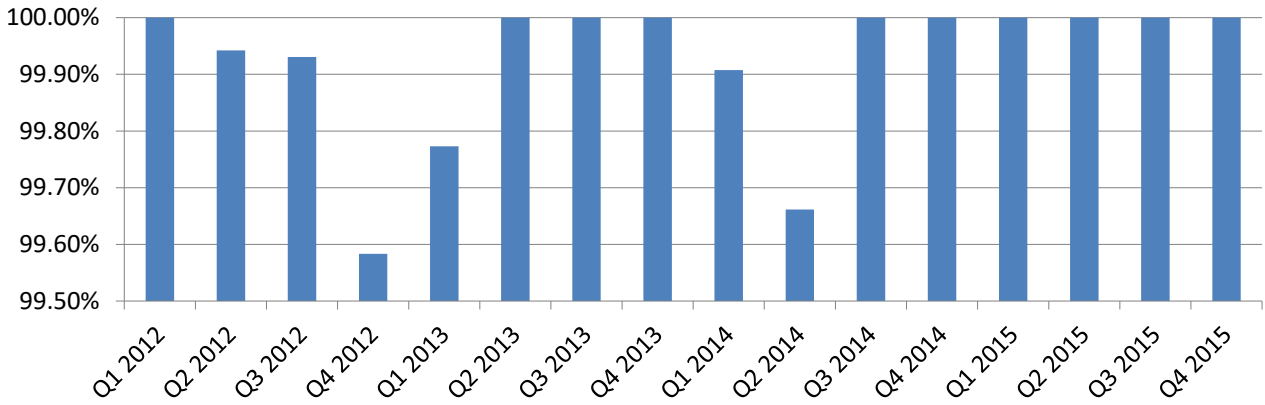
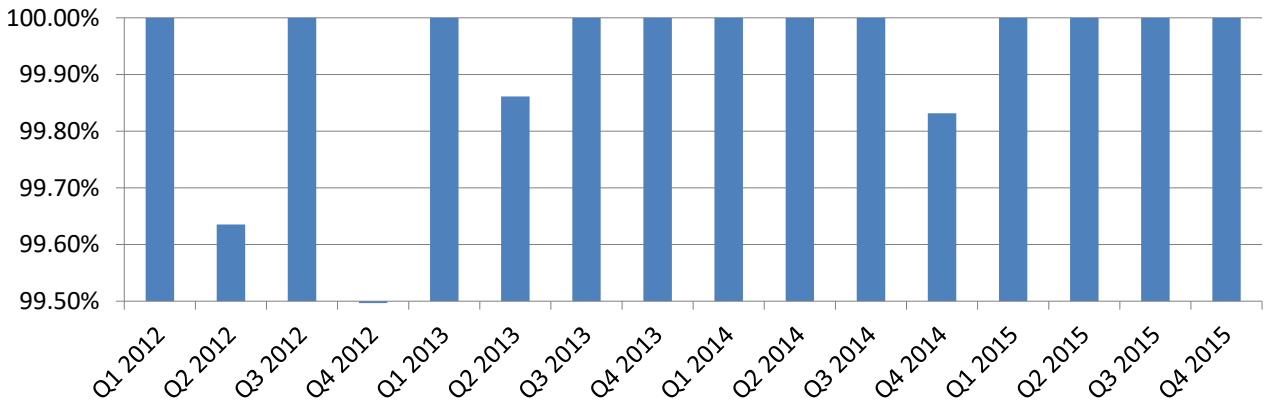### Software Applications
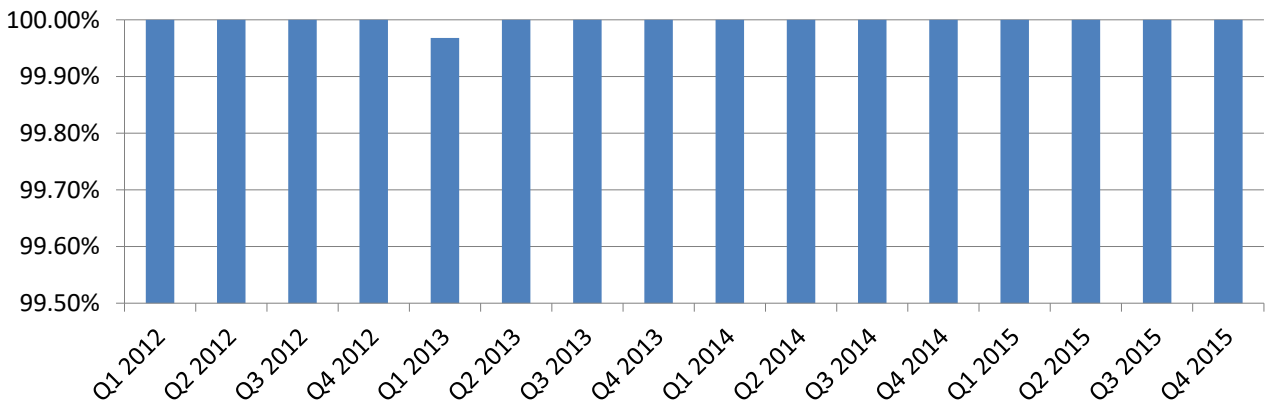
Internet

Individual Quarterly Service Availability – 2012 - 2015 (cont.)
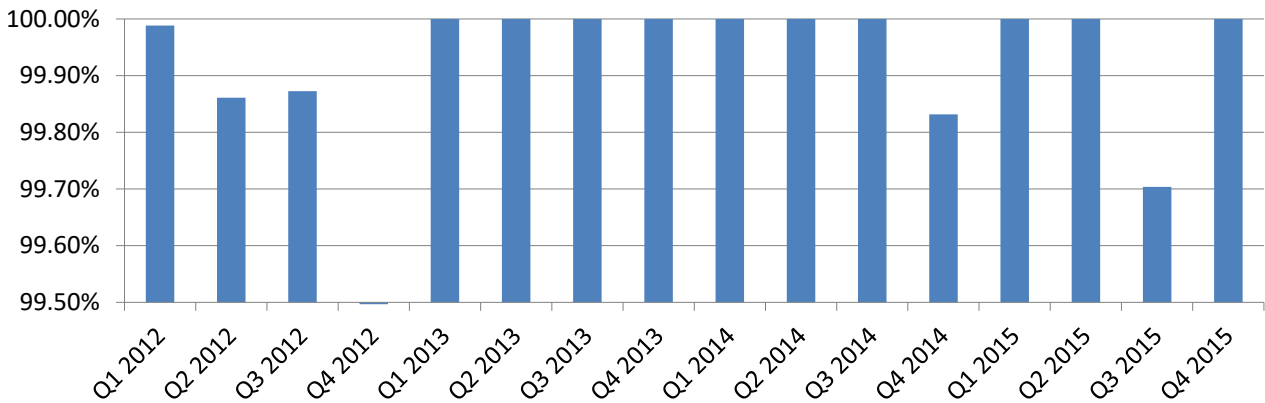
Elearning
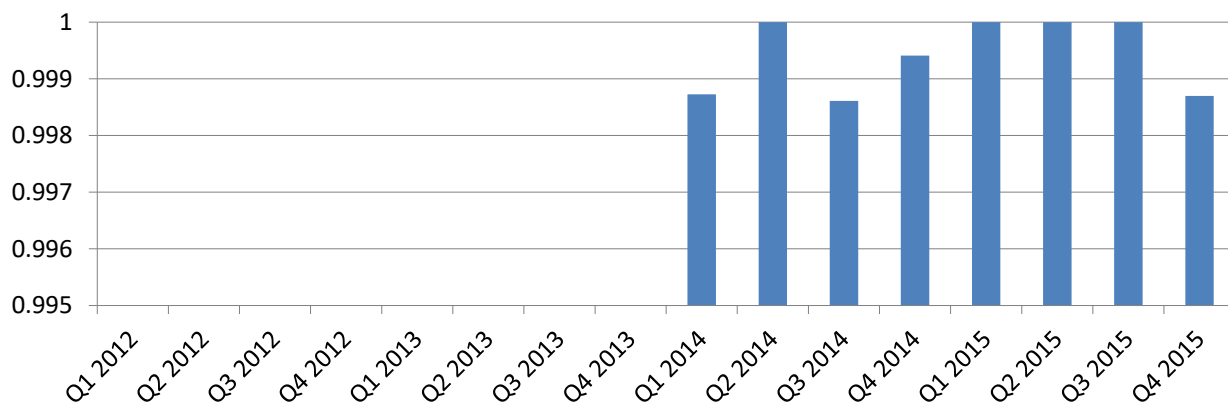

InfoHub

SIS Web

Individual Quarterly Service Availability – 2012 - 2015 (cont.)

Wireless

UCD Website