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EFSS Evaluation:
Competitive Review of Sync Performance

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Adopting enterprise file sync and share (EFSS) impacts network utilization and cost, how end users are able to collaborate, endpoint performance, and overall end-user productivity. Even on services with highly efficient sync technology, the cost of networking increases with broad adoption of file sync and share.

Evaluating sync performance is a critical factor in understanding which EFSS is the best choice for your organization, particularly when planning large-scale adoption or use in customer-facing processes.

Evaluating sync is challenging because it doesn't lend itself to a meaningful list of features that make it easy to compare. Features of sync are mostly the same across leading services. Our results show, however, that sync performance is dramatically different across EFSS services because of differences in architectures and the choices vendors make in implementing these features. We believe this difference will factor into how satisfied an enterprise is with its choice as well as end user rate of adoption.

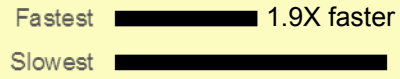
Our evaluation compares the results of a series of sync tests conducted by IDC across leading EFSS services to identify performance differences across different file sizes.

Source-to-Target Sync

For most organizations, the bulk of collaboration happens with small files. This test was used to compare end-to-end folder sync performance between two collaborators both using desktop sync. The test involved two domains – idc (employee) and yahoo (guest). This represents a common usage pattern of EFSS.

The test showed the smallest difference between fastest and slowest performance compared with the other tests, indicating that this was an optimization point across the services. However, update performance, tested with a mid-sized file, showed the greatest difference between fastest and slowest performance. The two need to be considered in tandem.

Source-to-Target Sync Performance



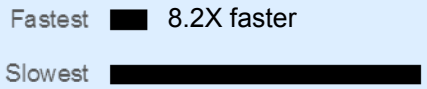
Initial & Update Sync Speed

A critical part of sync efficiency is how updates are synced – change only, blocks with changes or whole file – and whether sync initiates on change event or through a polling internal

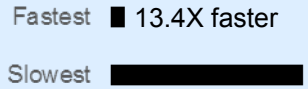
While tested on a 20MB PowerPoint, the results of the update test are highly relevant for all file sizes and shows which vendors have best update optimization.

We chose 20MB to test mid-sized file performance and to test updates because it was easiest to measure update sync differences using a larger file.

Initial Upload Performance



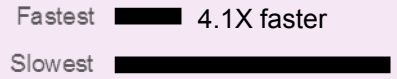
Update Performance



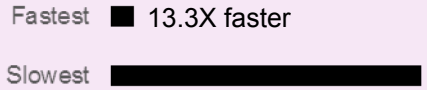
Large File Sync

As use of rich media grows across enterprises, file sizes are becoming much larger. Efficiency of sync is critical, particularly over networks with poor bandwidth. We ran this test with a 4GB video file.

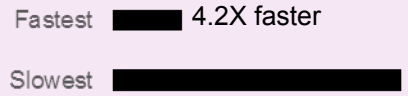
Upload Performance



Download Performance



End-to-End Sync Performance



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Methodology

- We implemented the enterprise version of each service, used the desktop sync tool and manual upload and download using the browser.
- We tested three classes of file sizes, and except for the large file tests, we ran each test three times. If one of the tests was a significant outlier, we deleted it and tested again to ensure a level of repeatability of results.
- Each test was run over the same home network from May through August 2016 with the same endpoints to minimize any extraneous differences, and normalized for the speed of the network during each test. Depending on the test, we measured elapsed time using a stopwatch, or by examining Wireshark logs.
- End-to-end sync – the sync of content from an originator to a collaborator – was tested with an IDC email address and a non-IDC email address to simulate collaboration between an enterprise end user and third party collaborator.
- Individual results of tests were first normalized to account for differences in network speed and then converted to a 100 point scale. The comparison of fastest and slowest on slide 3 is based on the normalized network speed scores. The comparison graphics in slides 5-10 reflect the 100-point score

- Vendors evaluated (Publication #)
  - Box (IDC #US41574616)
  - Citrix (IDC #41574416)
  - Dropbox (IDC #US41574216)
  - Egnyte (IDC #US41574516)
  - Google (IDC #US41574616)
  - Intralinks (IDC #US41574716)
  - Microsoft (IDC #US41709016)
- File size key for tests
  - Small: < 500KB
  - Medium: ~20MB
  - Large: ~4GB
- See more: Evaluation Guide to Enterprise File Synchronization and Sharing: Sync Performance (IDC # #US40545515, December 2015)

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Aggregate Test Results

Combined results of following tests:

- Source-to-target
- Initial mid-sized file sync
- Sync update
- Large file manual upload
- Large file manual download

Note: Because mid-sized and large file test results are over-represented at the expense of the small file source-to-target test, we weighted source-to-target to provide equal weight across all file sizes

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Vendor Name	Results
Dropbox	
Egnyte	
Box	
Intralinks	
Citrix	
Google	
Microsoft	

Test 1:

Source-to-Target Folder Sync

Using the sync app for both the content originator and an external collaborator with auto-sync, this test measured the speed with which a folder with 10 small files (each under 500 KB) were synced from one end user to cloud to another end user

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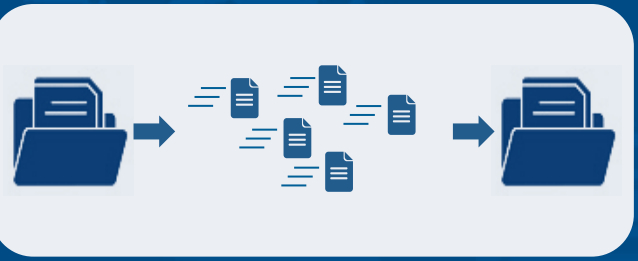
Vendor Name	Results
Box	
Dropbox	
Citrix	
Egnyte	
Google Drive	
Intralinks	
Microsoft	

Note: Microsoft failed because it does not support sync with external collaborators

Test 2:

Initial and Update Sync Speed



This test measured the speed of a 20MB PowerPoint file sync to cloud and the update sync speed of a small change to the file. We picked 20MB as a size that approaches the top limit of a normal file range. Services that only sync the changes are inherently more efficient than those that have to sync the entire file each time a change is saved.

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Vendor Name	Initial Sync	Update Sync
Dropbox		
Egnyte		
Microsoft		
Intralinks		
Citrix		
Google		
Box		

Test 3:

Large File Sync

This test measured the upload, download and end-to-end sync speed of a 4+ GB MPEG file. The test measured how long it took to upload and download the file from the service, if the user could begin to stream the file in the browser

Vendor Name	Upload	Download	End-to-End
Dropbox			
Egnyte			
Box			
Microsoft			
Intralinks			
Google			
Citrix			

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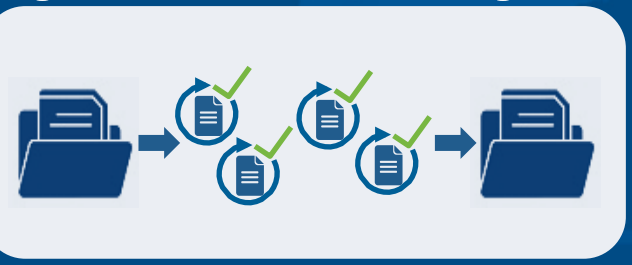
Test 4:

Sync Reliability



This test was designed to determine whether or not the EFSS services can recover from an abrupt service disruption during a file upload. Network was interrupted for 5 minutes during cloud upload from browser and desktop sync uploads

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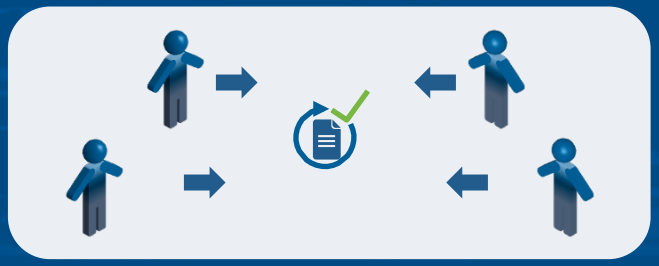
Vendor Name	Sync Tool	Browser
Google Drive	√	√
Box	√	✕
Citrix	√	✕
Dropbox	√	✕
Egnyte	√	✕
Intralinks	√	✕
Microsoft	√	✕

Test 5:

Near-real-time Collaboration



This test was designed to determine how effectively users can collaborate when working together under deadline on the same Microsoft Office file and how quickly changes are reflected

Vendor Name	Results
Box	●
Citrix	●
Dropbox	●
Egnyte	●
Microsoft	●
Google	◐
Intralinks	○

Note: Intralinks plans to support real-time co-authoring using Office 365 in 2016

Recommendations

- Ideally, best-in-class sync performance across all use cases should align with best-in-class performance in other areas of EFSS functionality. If it doesn't, determining how to weigh sync performance against other core capabilities and requirements should factor in your most significant use cases.
  - Best-in-class sync performance is required for support of large files, near-real-time collaboration, and unreliable network conditions. These conditions are often present when an organization operates globally, where use of mobile is a key reason for EFSS adoption or where digital media plays an important role in the business.
- Invest time in developing use cases and broadening out the evaluation team to reflect a mixed constituency
  - The team should consist of IT and business administrators, a representative from the compliance organization and security team, project managers, content authors, content approvers, mobile users and participation from the leadership team
  - Do not under-estimate the importance of content collaboration with business partners and customers because it is common use case. Where this type of collaboration is an important requirement, you may want to consider including business network evaluation participants, particularly in proofs of concept
- As EFSS providers move toward cloud-only usage patterns, particularly where core applications are seamlessly integrated with EFSS, the network and productivity impact of poor sync performance are reduced. Despite these improvements, there are still significant gaps between online and offline use. Until FSS services can bridge this gap as well as broaden out support for all applications that involve collaborating on content, enterprises will not be able to fully standardize on cloud-only access. Sync performance will continue to be a critical factor for evaluation