

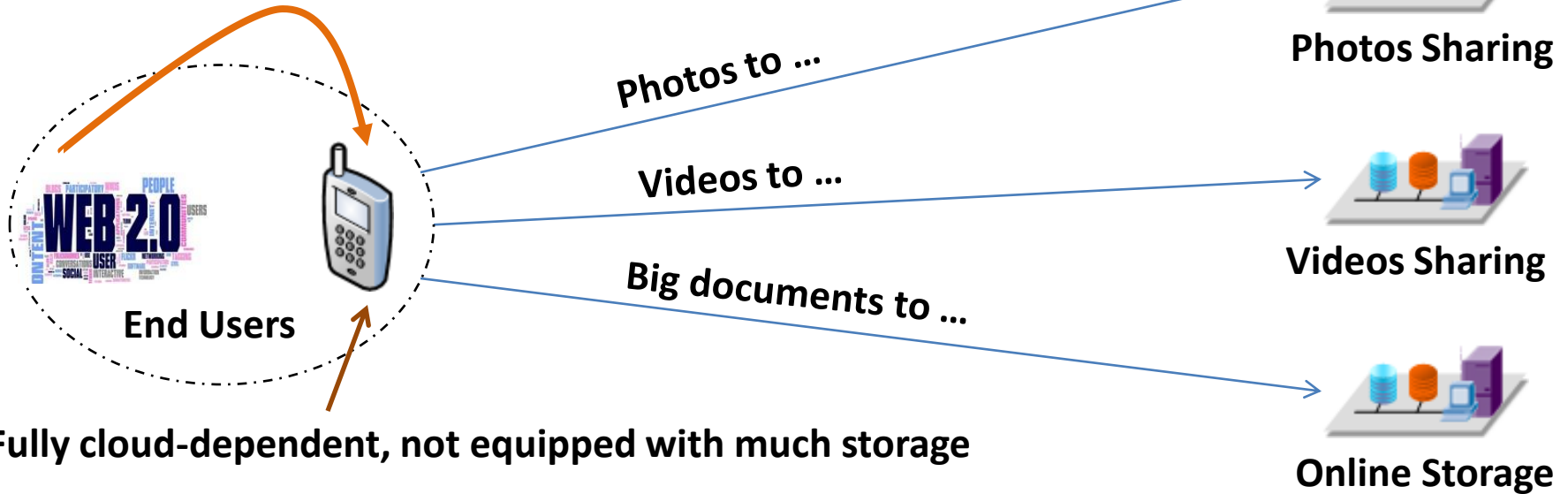
# Upload Acceleration Transport Network (UATN) for Upstream Traffic

Xiaowei Qin ,Ning Kong

IETF 93 APPSAWG

# Problem Statement

One EU sends content to another EU

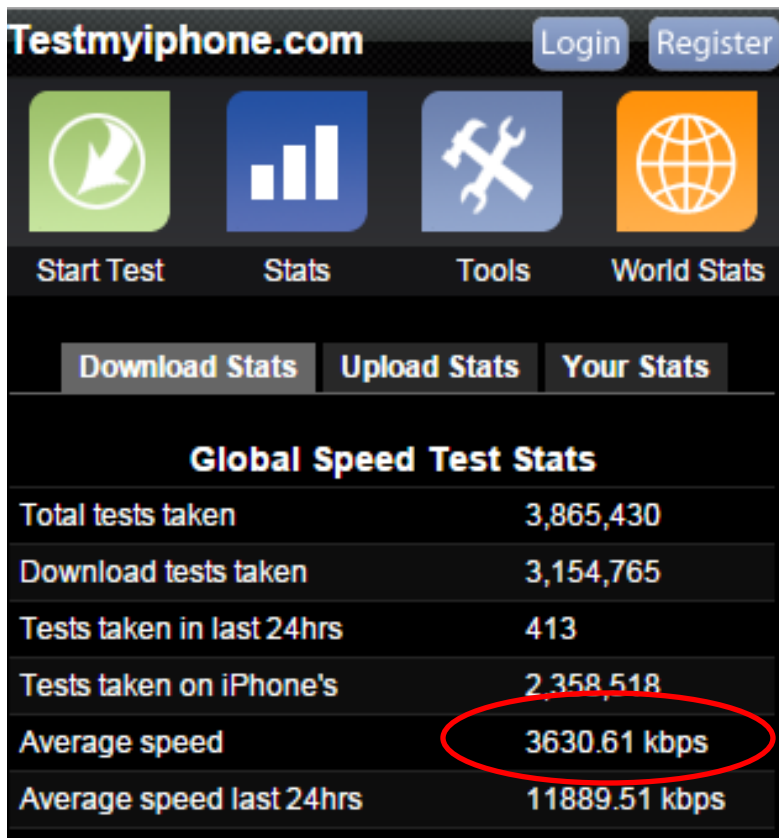


The direction of the Internet traffic is changing, **User-generated-Content** grows **drastically**. According to the metrics from Google's DoubleClick service, with more than 900 million active users, Facebook currently accounts for about 9 percent of all Internet traffic, slightly more than Google.

Data are obtained from: [www.datacenterknowledge.com/the-facebook-data-center-faq/](http://www.datacenterknowledge.com/the-facebook-data-center-faq/)

# Problem Statement

Because existing acceleration technologies such as CDNI, DECADE, focus on content distribution, upload service usually incurs low data upload rate. Through measurements over 3 million mobile devices, the average downstream throughput is up to **3600 Kbps**, but upstream is only about **600 Kbps**. Data comes from: <http://testmyiphone.com/>.



# Problem Statement

- I. For improving user experience, some SPs have scaled up or are scaling up their data centers.
- II. Can other SPs especially small SPs scale up their data centers? And can one SP's data center cover all their end users? Need sharing and interconnecting like CDNI to keep the costs at a reasonable level?

900 million active users



Oregon

North Carolina

.....

829 million active users



Tencent



Beijing

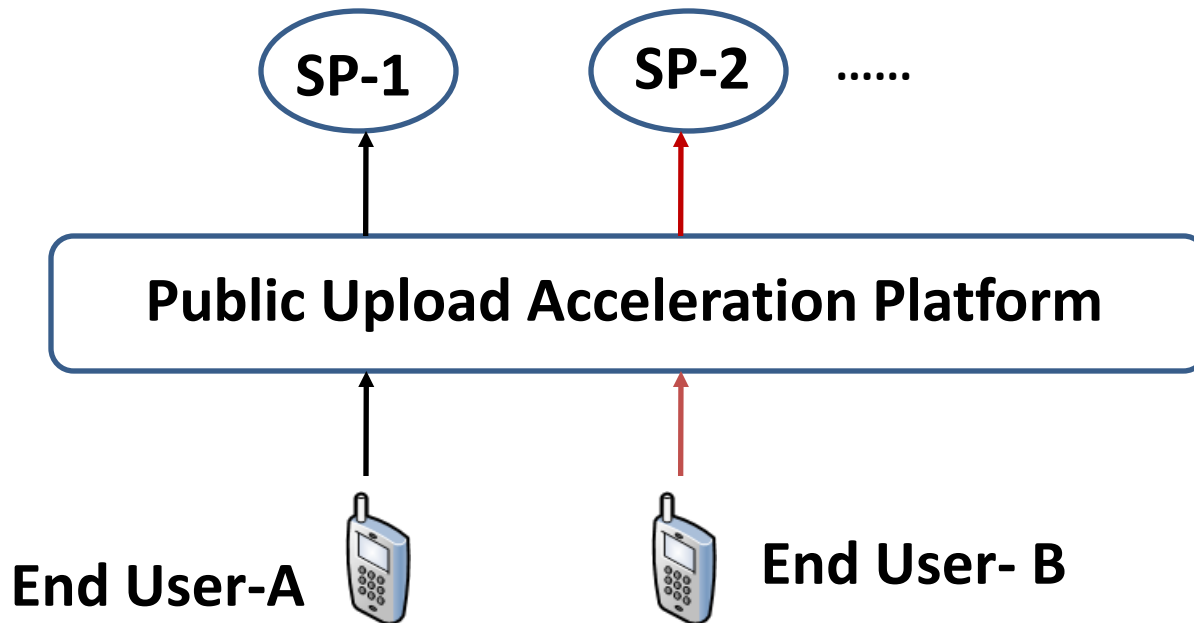
Shanghai

From: <http://tech.qq.com>

From: <http://www.datacenterknowledge.com/the-facebook-data-center-faq/>

# Use Case I

## (Public Upload Acceleration Platform)

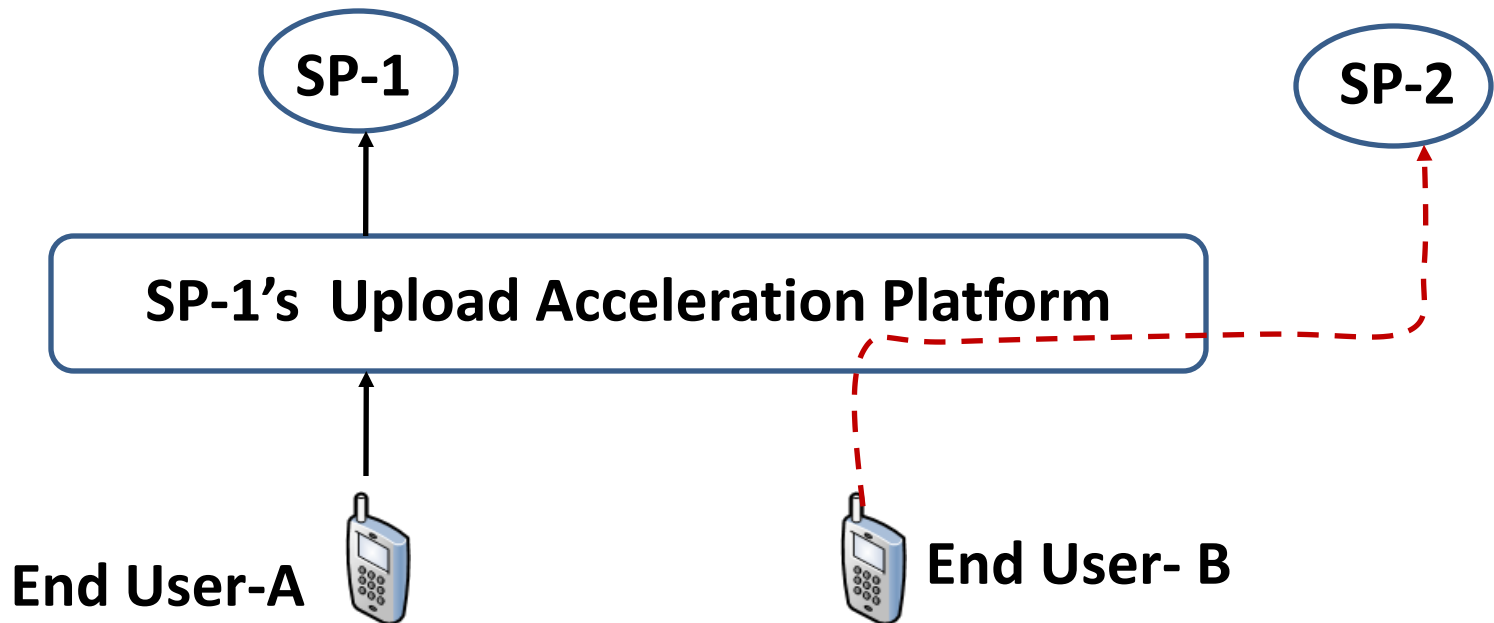


**Building a public upload acceleration platform to improve user experience as well as keep the costs at a reasonable level.**

**It makes sense for SPs especially for small SPs.**

# Use Case II

## (Share Upload Acceleration Platform)

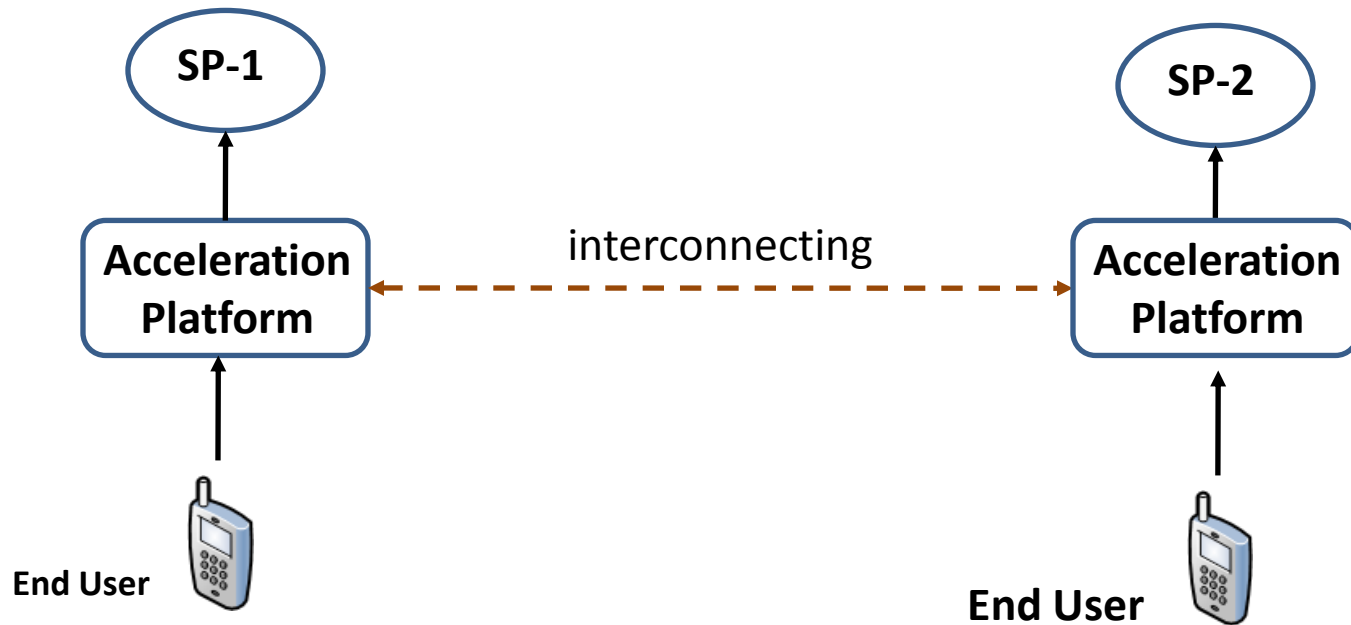


**SP-1 shares it and can receive some compensation.**

**SP-2 can improve user experience and need not build such a platform.**

# Use Case III

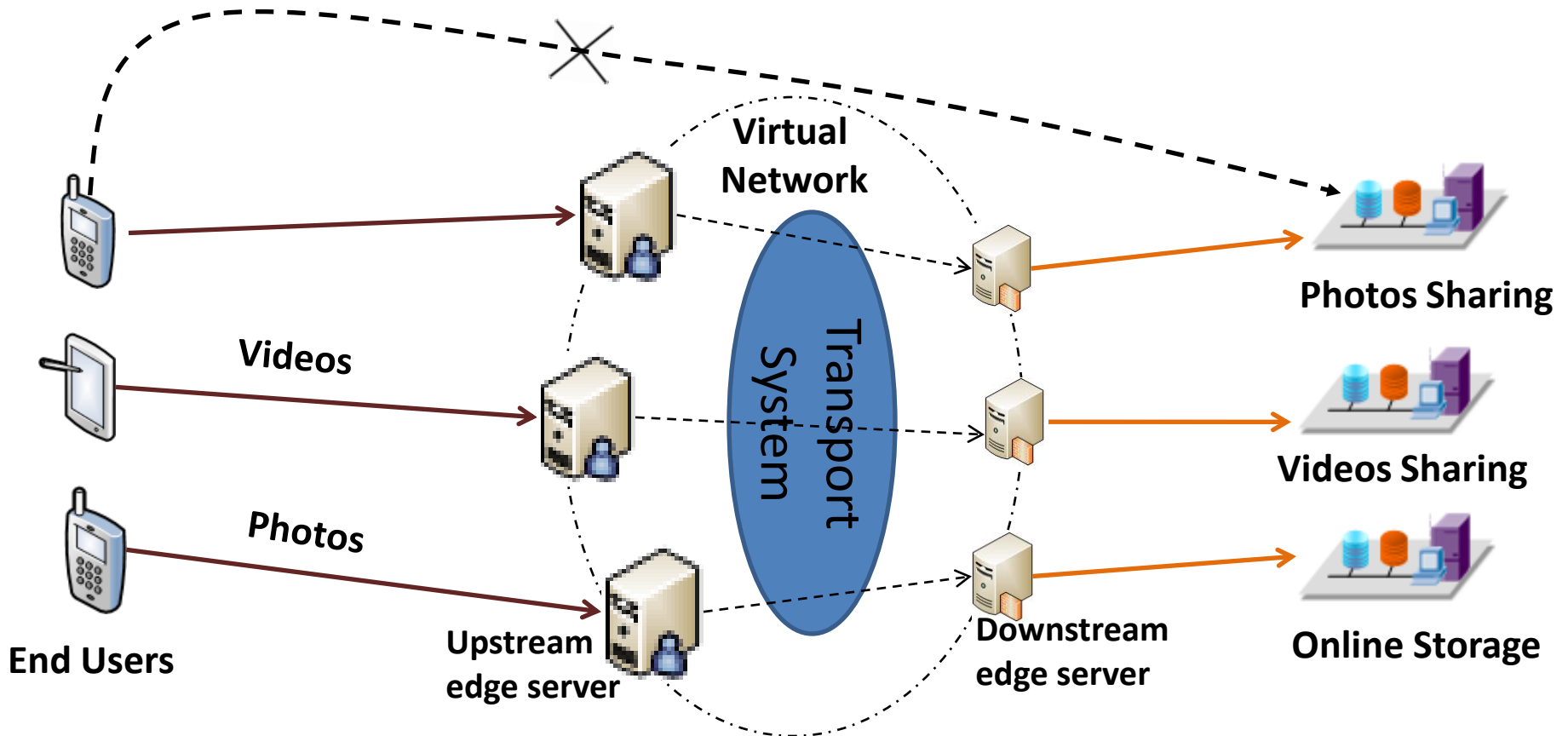
## (Interconnect Acceleration Platform)



**SPs can interconnect their upload acceleration platforms to extend their footprint. It only needs to make one business agreement.**

# Proposed Solution

## Upload Acceleration Transport Network(UATN)



U-ES: receiving end users' content. D-ES: delivering content to destination data center.

Transport System: moving data over the Internet.



# Proposed Solution(What should do)

## **(1).Identification of pre-uploaded content and Redirection of the uploading request**

Downloading: URL/URI --> “DNAME” of the DNS --> CDN

Uploading: How to identify the pre-uploaded content and redirect the request to UATN?

## **(2).Move the random & mass content generated by end users efficiently**

Downloading: content generated by companies, large and manageability

Uploading: When and where end users upload content is random, mass and relatively small

## **(3). Best edge server and optimal uploading route**

Downloading: moving content to the hot edge server in advance.

Uploading: UATN should assign the best edge server and select a optimal uploading route to serve a uploading.

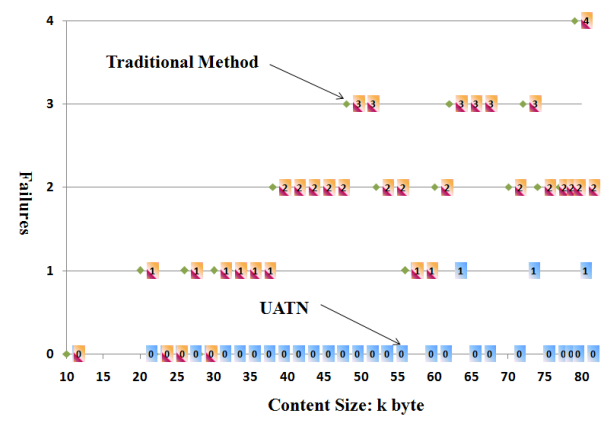
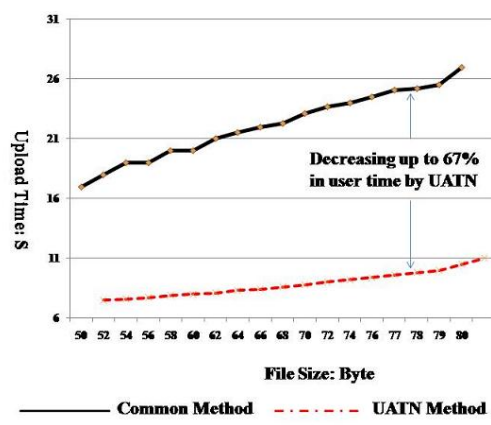
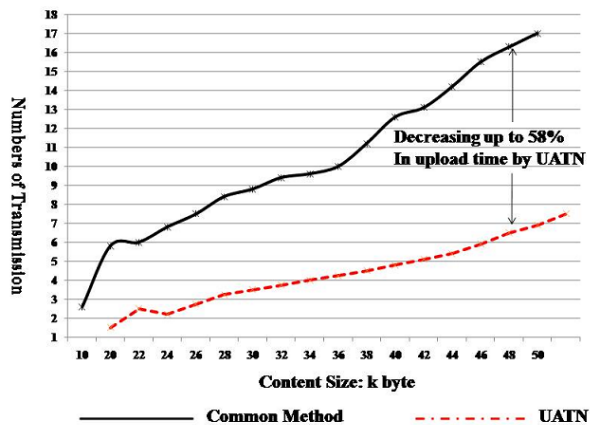
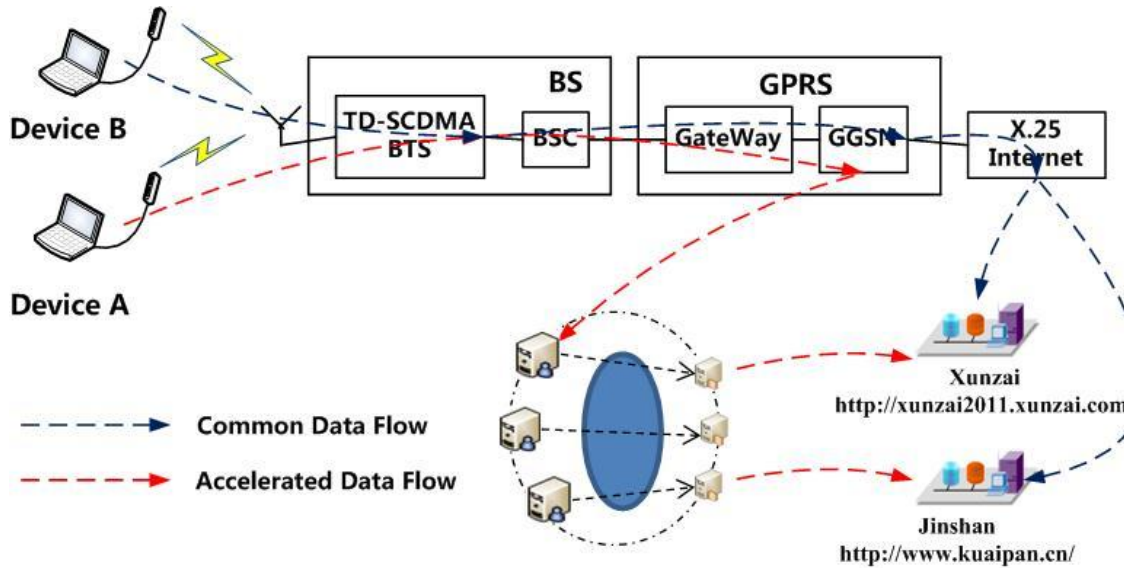
## **(4). Security**

Downloading: check users for the fee.

Uploading: UATN should protect user privacy and SP’s trade secret.

# Experiment

The prototype system of UATN, taken in China Mobile Labs



Shorten upload time

Improve one-time success

# Open Questions

**Is this topic in the scope of APPSAWG?**

**How many people interested in this work?**

Comments?

Thank you!