

Virtual Desktop Infrastructure (VDI) Protocol Problem Statement

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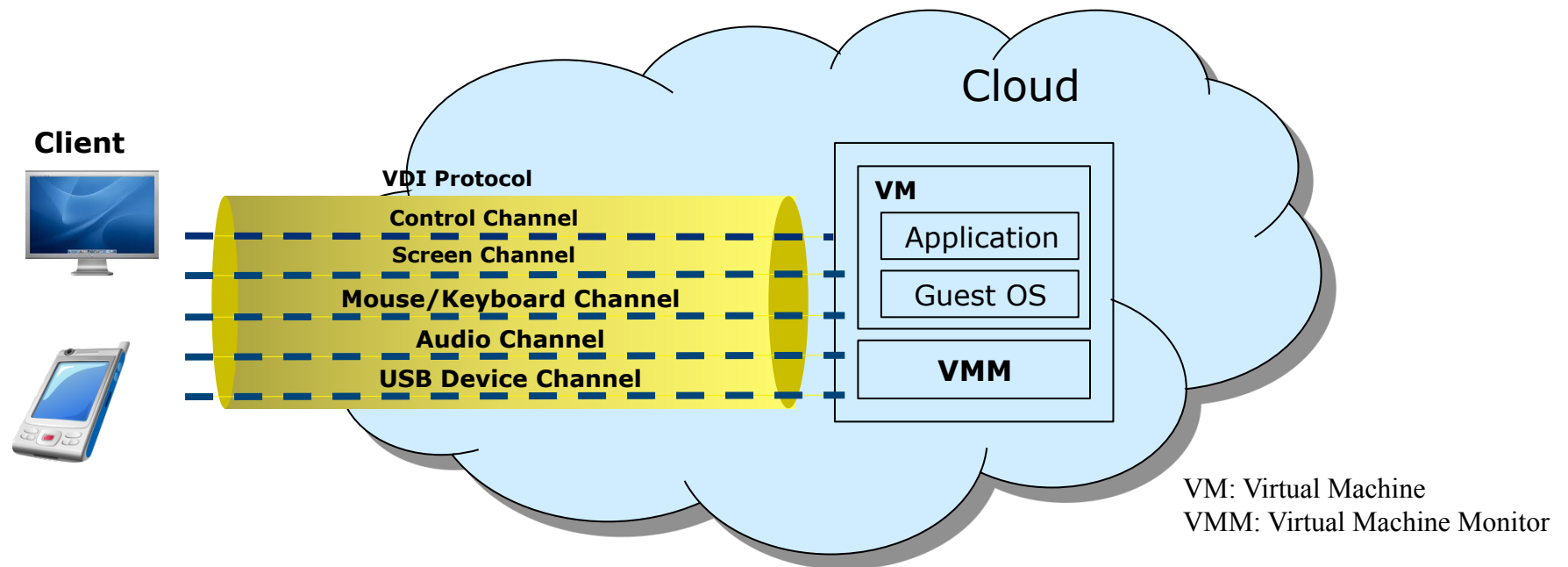
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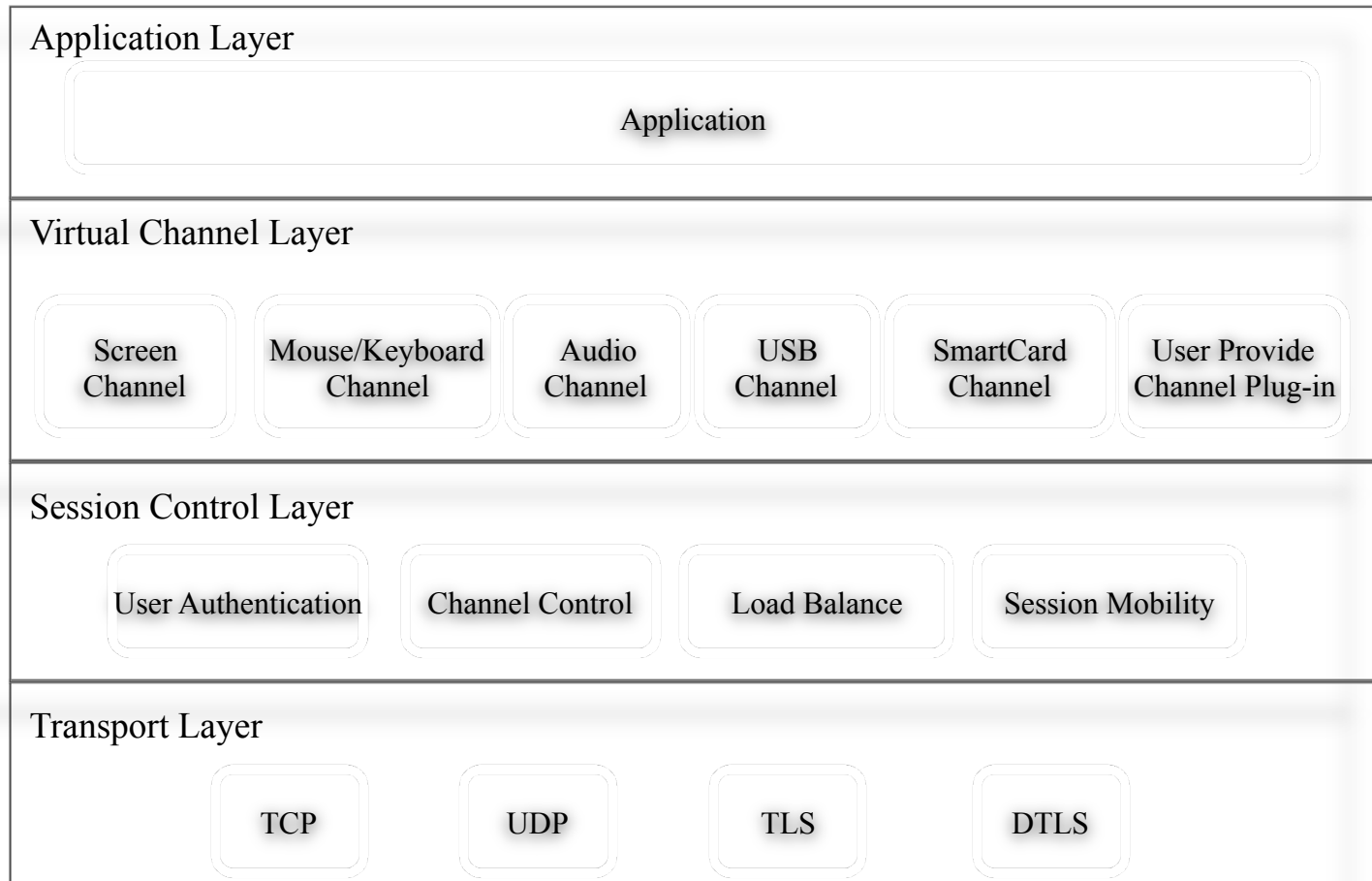
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What is VDI



- **VDI** means Virtual Desktop Infrastructure, in which the client acts as purely I/O devices and the computing moves into the server in the cloud
- **VDI protocol** connects Client and server, transporting the necessary control commands and I/O data. Different I/O data may be encapsulated in different virtual channel.

Proposed VDI Protocol Stack Architecture

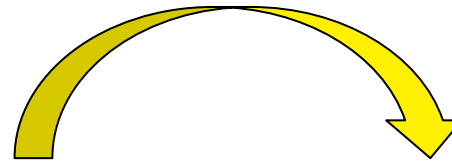


VDI is not new

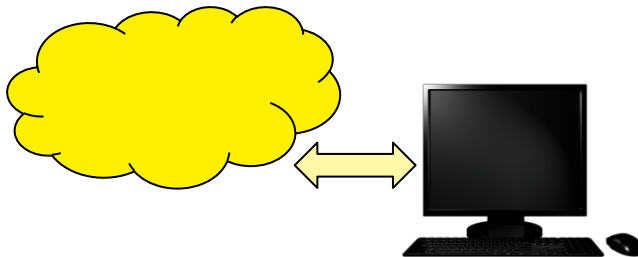
- VDI is one new name, **but the concept is already there** for a long time – server-based computing(SBC). This is the same for VDI protocol.



Mainframe Computing Age



Client-Server Computing Age

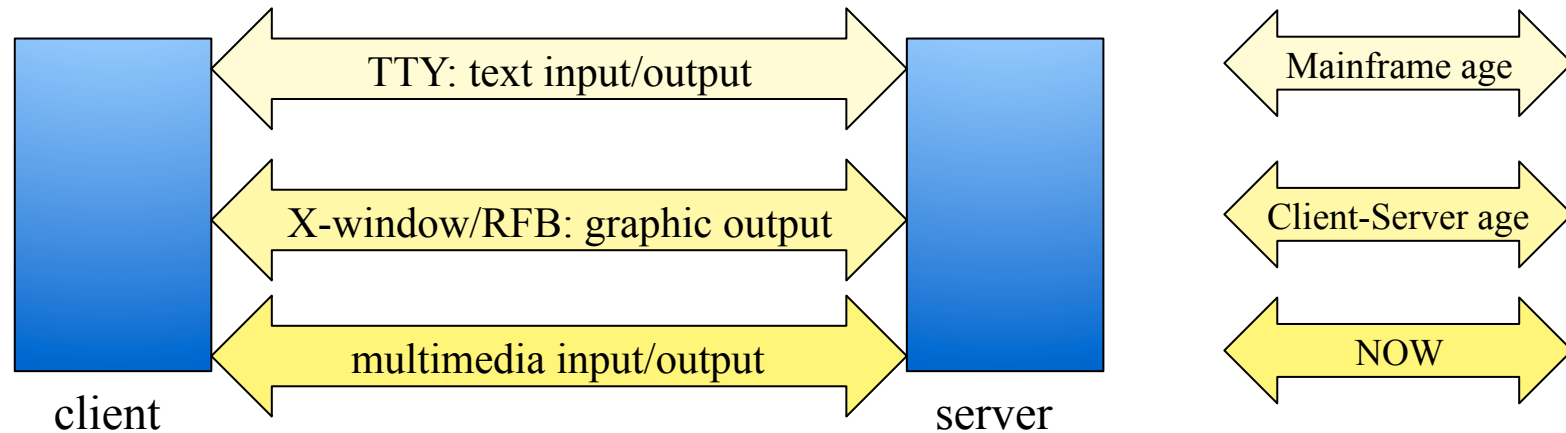


Cloud Computing Age



VDI protocol is not new also

- VDI protocols at different period:



- **IETF has been a place for VDI protocols like:**

- RFC for X Window: [RFC1013](#)
- RFC for RFB: [RFC6143](#)

- We investigated* current mainstream VDI protocols and found that **they are doing the same thing.**

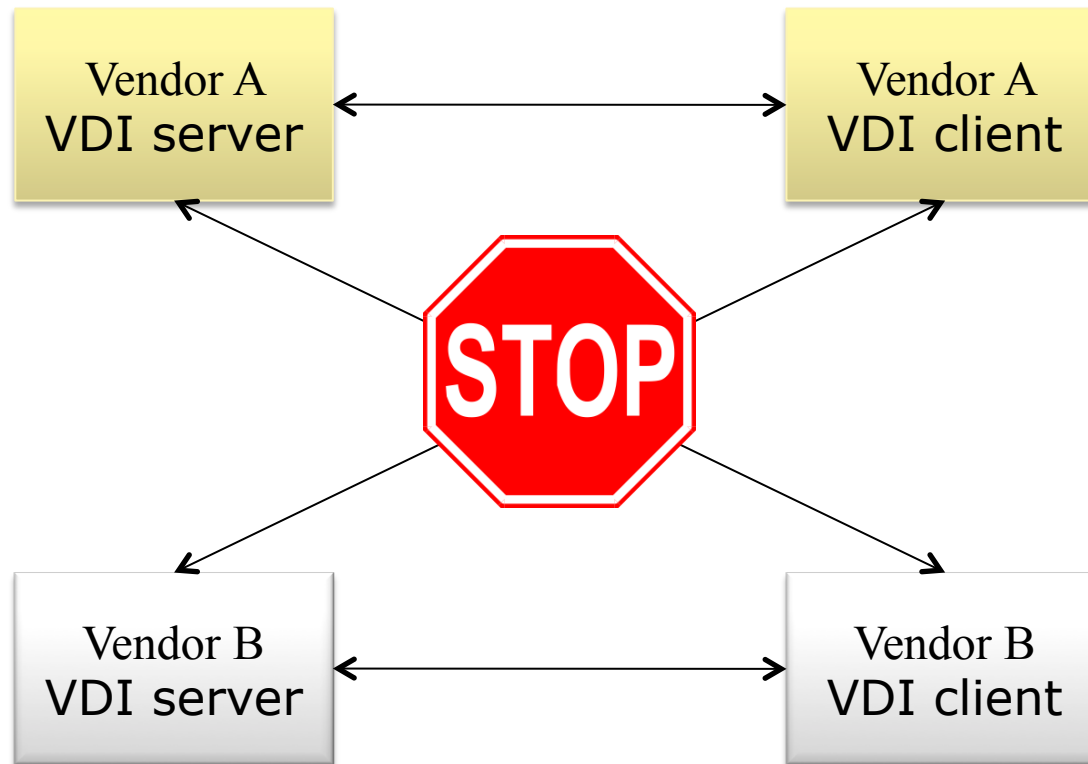
* Please refer to [VDI survey document](#)

Challenges for non-standard VDI protocols

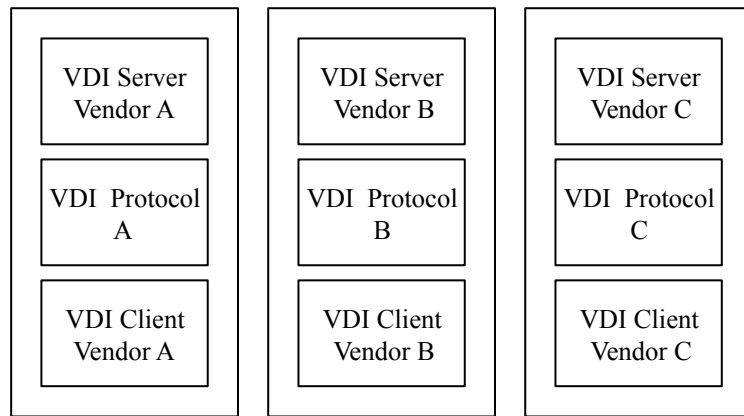
- Challenges
 - Interworking
 - Ecosystem
 - Optimization for mobile access
 -
- Currently VDI deployment is in the initial phase, NOW is the right time to look forward to one standard VDI protocol, because the cost of standardization is lowest in the initial phases.

Big challenge: Interoperability

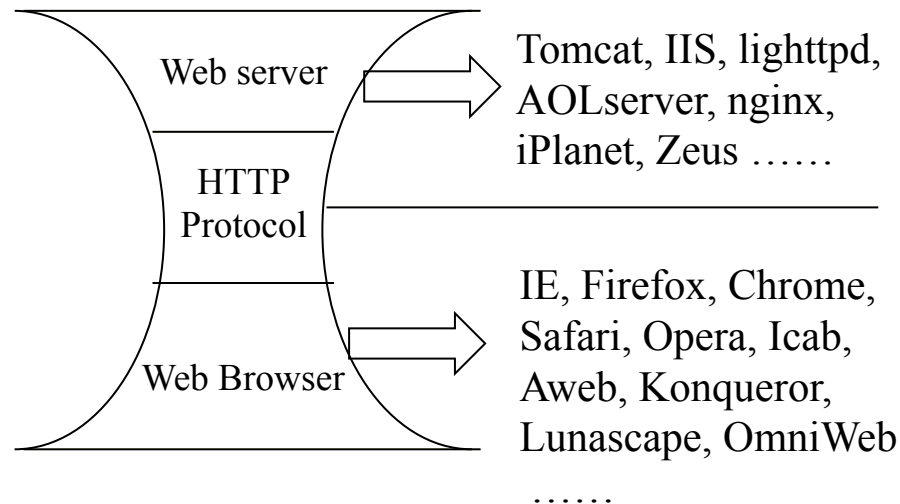
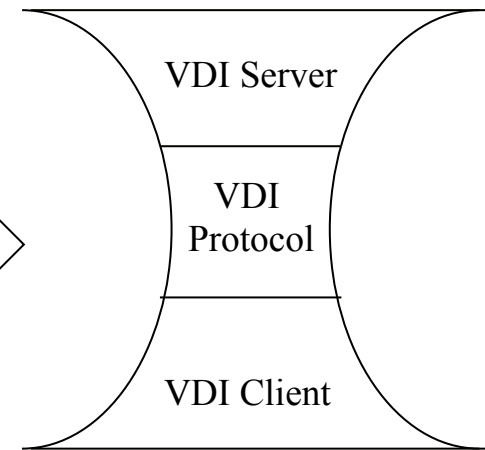
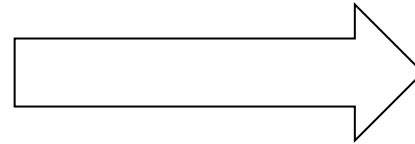
- Although current VDI protocols are aiming the same goal, they are defined by different companies using different methodologies. So



Big challenge: Ecosystem



VDI closed-system

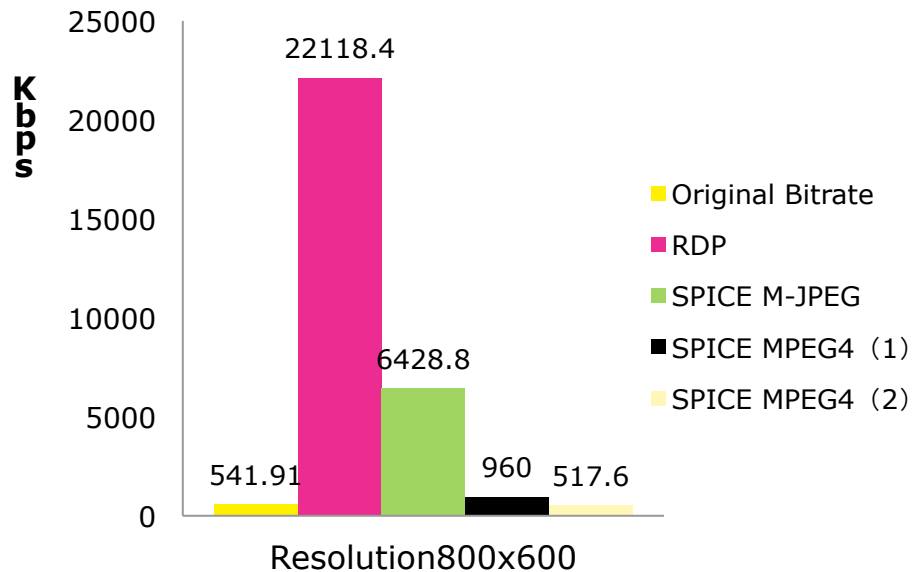


Web Ecosystem

Benefiting from standardization of HTTP protocol, web server vendors and web browser vendors have no tight-coupling relationship. They could move forward independently and attract new comers at any time. All these composes one ecosystem.

VDI also need such ecosystem.

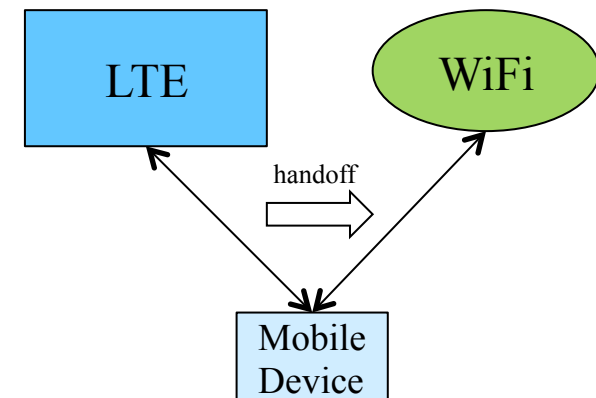
Challenge – Accessing through mobile devices



Current VDI protocol/application has no much optimization for mobile access:

- Streaming application in the best current systems consuming extra 8x bandwidth compared to original bitrate.
- Replacing M-JPEG encoder with MPEG4, Bandwidth can be saved 75%-92%
- In addition, The audio compression still need further optimization to keep up with existing VoIP codec's efficiency

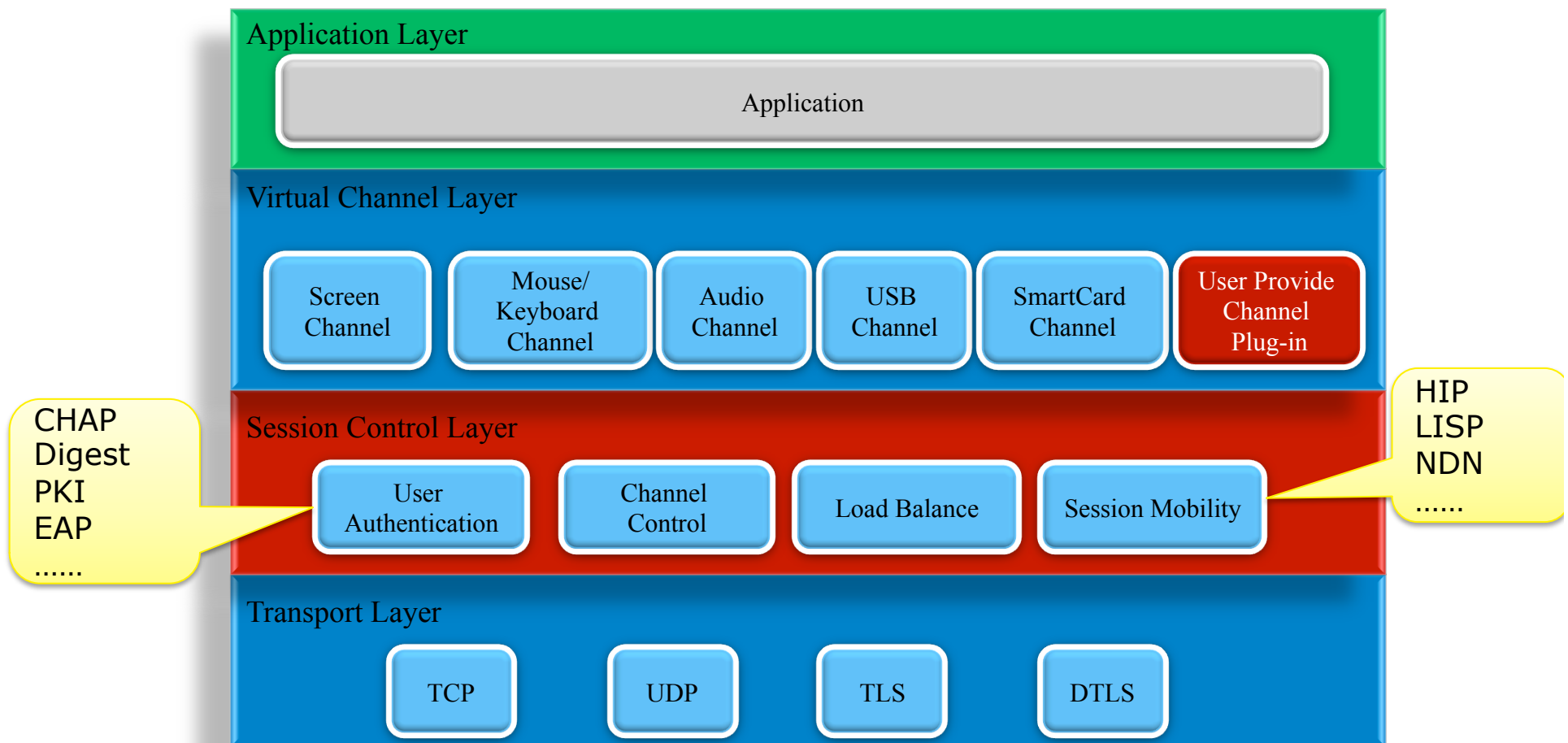
- Service continuity issue while switching over different access networks and different devices
- Duplicate sign-on issue: mobile user will be authenticated at least twice (one by the network, and another by VDI server)



Proposed VDI Protocol Stack Architecture

Principle:

Protocols defined in IETF and other standard organization will be re-used as many as possible.



What will we do in IETF next?

- Extended definition: It is the protocol for communication between client and server, used to exchange input/output/ control messages. Benefiting from this protocol, user could get the same experience of running tasks in remote server as doing that in local device.
- Scope: Focus on drafting architecture, framework and basic capability addressing above extended definition.
- Goal: **open and standard remote access protocol:**
 - Allowing interworking between different vendors;
 - Well-defined framework and flexible to be extended by separate components for performance optimization;
 - Built on top of IETF defined protocols and reuse IETF standards as much as possible.

What will we do in IETF next? (Cont.)

Next Step:

- Continue to call for companies/parties/persons with interest in VDI protocol standardization;
- Discussion meeting with all stakeholders and teamwork for:
 - Developing a comprehensive VDI Problem Statement and Resolution document listing the technical issues of the existing VDI systems;
 - Proposing reference architecture, and defining the scope of VDI protocol standard;
 - Developing a VDI Requirements document that defines the functional and operational requirements of the VDI protocol;
- Looking for participation volunteers for a possible BOF on VDI during IETF-82 in Taipei;

Call for your joining!

Pls. feel free to send mail to us:

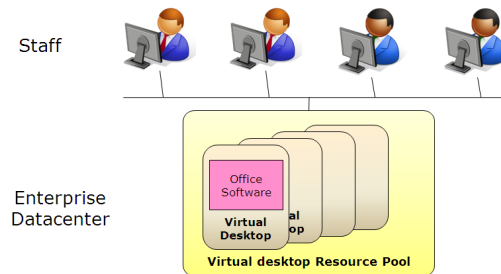
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**Thanks for
your comments**

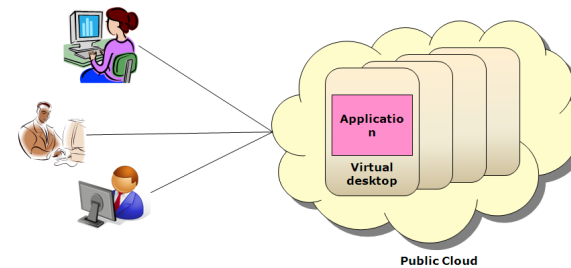
BACKUP

VDI services in cloud computing age

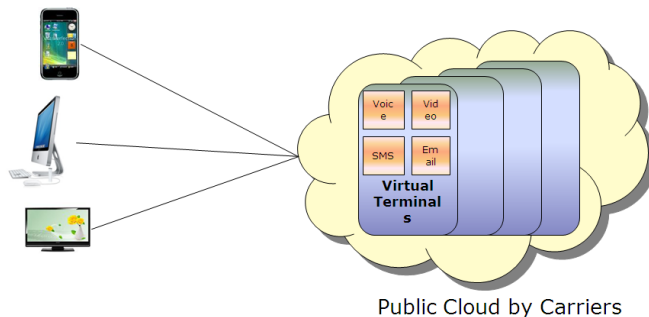
- Many business model could be created to better serve customer: MORE reliable, secure, flexible



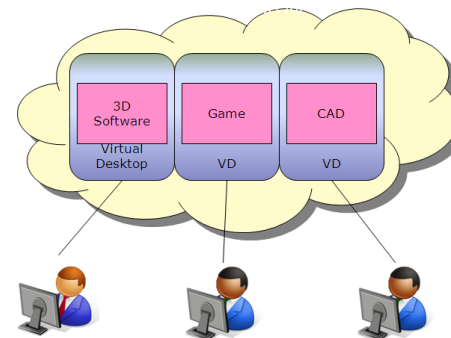
Enterprise IT Infrastructure



Personal Virtual Desktop Hosting



Telecom Terminals hosting



SaaS delivery