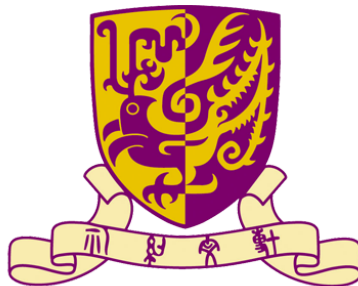




ICEBERG
CAPITAL PARTNERS



香港中文大學

The Chinese University of Hong Kong

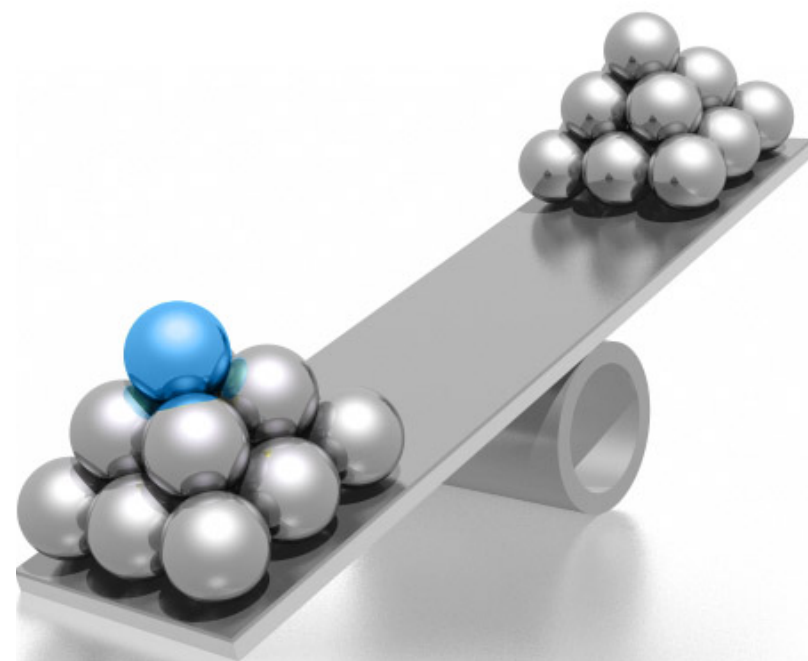
Patent Acquisition Opportunity

Strictly confidential

April 2015

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Executive Summary

Portfolio overview

- The patent offering from CUHK comprises 8 US patents across 8 families, including foreign filings in China and Japan
- The technologies in this portfolio relate to video streaming, streaming optimization and transcoding technologies – all applicable to the delivery of optimized digital content to end-user devices
- Notable forward citing companies include Nokia, Intel, Verizon, Google and The Walt Disney Company.
- The earliest priority date in the portfolio is 29th June 2007.

Encumbrances

- No licenses.
- No buyer restrictions.

Transaction Profile

- ICEBERG Role: Sell-side adviser.
- Guide price:
US \$200k per patent family
- Grantback license required.
- Indication of interest requested to be submitted by: 19th June 2015.

Appendix

- Indications of technology area relating to the patents, services enabled by the technology and potential market size.

Seller and Inventor Information

Chinese University of Hong Kong

Founded in 1963, The Chinese University of Hong Kong (CUHK) is a forward-looking comprehensive research university with a global vision and a mission to combine tradition with modernity, and to bring together China and the West. CUHK teachers and students hail from all around the world. CUHK graduates are connected worldwide through an extensive alumni network.

Source: <http://www.cuhk.edu.hk/english/aboutus/university-intro.html>

Multimedia Communications Laboratory

“At MCL, we conduct cutting-edge research and development projects in the area of multimedia communication systems. Our research focuses on the challenges and problems in building next-generation multimedia systems and applications over the current and future Internet.”

Source: <http://www.mcl.ie.cuhk.edu.hk/>

Prof. Lee Yiu-Bun, Jack 李耀斌教授

Jack Yiu-Bun LEE received his B.Eng. and Ph.D. degrees from the Chinese University of Hong Kong in 1993 and 1997, respectively. He is currently Associate Professor at the Department of Information Engineering, the Chinese University of Hong Kong. His research group focuses on challenges in multimedia communications systems, mobile communications, protocols, and applications.

From 1997 to 2010 Jack investigated challenges to the design and implementation of scalable and fault-tolerant video streaming systems. His team explored and developed various architectures including parallel servers, multicast streaming, as well as decentralized approaches. This line of research resulted in over 50 publications and 7 US Patents.

Ke Liu and Jack Y. B. Lee, "Improving TCP Performance over Mobile Data Networks with Opportunistic Retransmission," *IEEE Wireless Communications and Networking Conference (WCNC 2013)*, Shanghai, China, April 7-10, 2013.

Source: <https://www.ie.cuhk.edu.hk/people/yblee.shtml>

Patent List

Family	US Patent	US	JP	CN	EP	Priority	Title
1	7962640	●			●	29/06/2007	Systems and methods for universal real-time media transcoding
2	8555323	●				28/09/2010	Methods for replicating media contents and p2p vod systems
3	8488461	●				12/05/2010	Adaptive scheduling of data transfer in p2p applications over asymmetric networks
4	8681628	●		●		30/09/2008	Systems and methods for determining top spreaders
5	8719435	●	●	●		21/08/2009	Devices and methods for scheduling transmission time of media data
6	8437637	●				29/11/2010	Methods and systems for multicast control
7	8509080	●		●		29/06/2009	Network traffic accelerator
8	8548065	●				22/10/2009	Parametric interpolation filter for motion-compensated prediction

Appendix

Market Application

Technology area and potential users – Overview

US7962640: Patent relates to the transcoding of digital media data (such as TV, movies and other video services) for playback on a range of end-user devices. The solution seeks to provide a platform to resolve the incompatibility of video and web formats when they are transmitted from multiple sources to multiple differing end-user devices.

Delivery of contents to TV Set Top Box (STB), smartphones and tablets is performed by streaming transcoded media.

Transcoding and streaming are performed real time, and transparent to the end-user.

Since transcoding is performed outside of the end-user device this has the benefits of simplifying the end-user device:

- Proprietary software on end-user devices is not required
- Simpler, low cost STBs can be deployed
- A wide range of devices can be targeted: Feature Phones, Smartphones, iPhones and Android

Technology area and potential users – Applications

The key element of the claims relate to the real-time network-based transcoding, which provides efficient delivery of

- Internet TV
 - Provisioning of Internet over TV
 - Delivering Pay Content e.g. Pay TV, VOD
 - Pay Web sites Hosting
- Mobile Internet
 - True Internet Experience over Mobile
 - High Quality Video Content from Content Providers
 - Real Time Transcoding
- Target Advertising

Technology area and potential users – Services enabled by the portfolio

	Basic	Advance
Video	<ul style="list-style-type: none"> - Live streaming - VOD - Pay per view 	<ul style="list-style-type: none"> - PVR - Multiple Videos into single stream
Internet	<ul style="list-style-type: none"> - Optimized web browsing - All popular video formats including legacy systems 	<ul style="list-style-type: none"> - Email service - Instant messaging - Social network
Advertising / Data mining	<ul style="list-style-type: none"> - Logo and banners - Carry through - Pre-rolled 	<ul style="list-style-type: none"> - Video insert - Text/graphic and video overlay - Behavioral specific content - Geographical specific content

Technology area and potential users – Market size

TV is the second most owned device by Household:

- No of Mobiles in the World = ~5 Billion
- No of PC's in the world = ~1 Billion (2009) *
- No of TV's in the world = ~1.4 Billion**

According to PwC, the over-the-top streaming revenue will grow from 8.3 billion U.S. dollars in 2014 to almost 23 billion in 2018***.

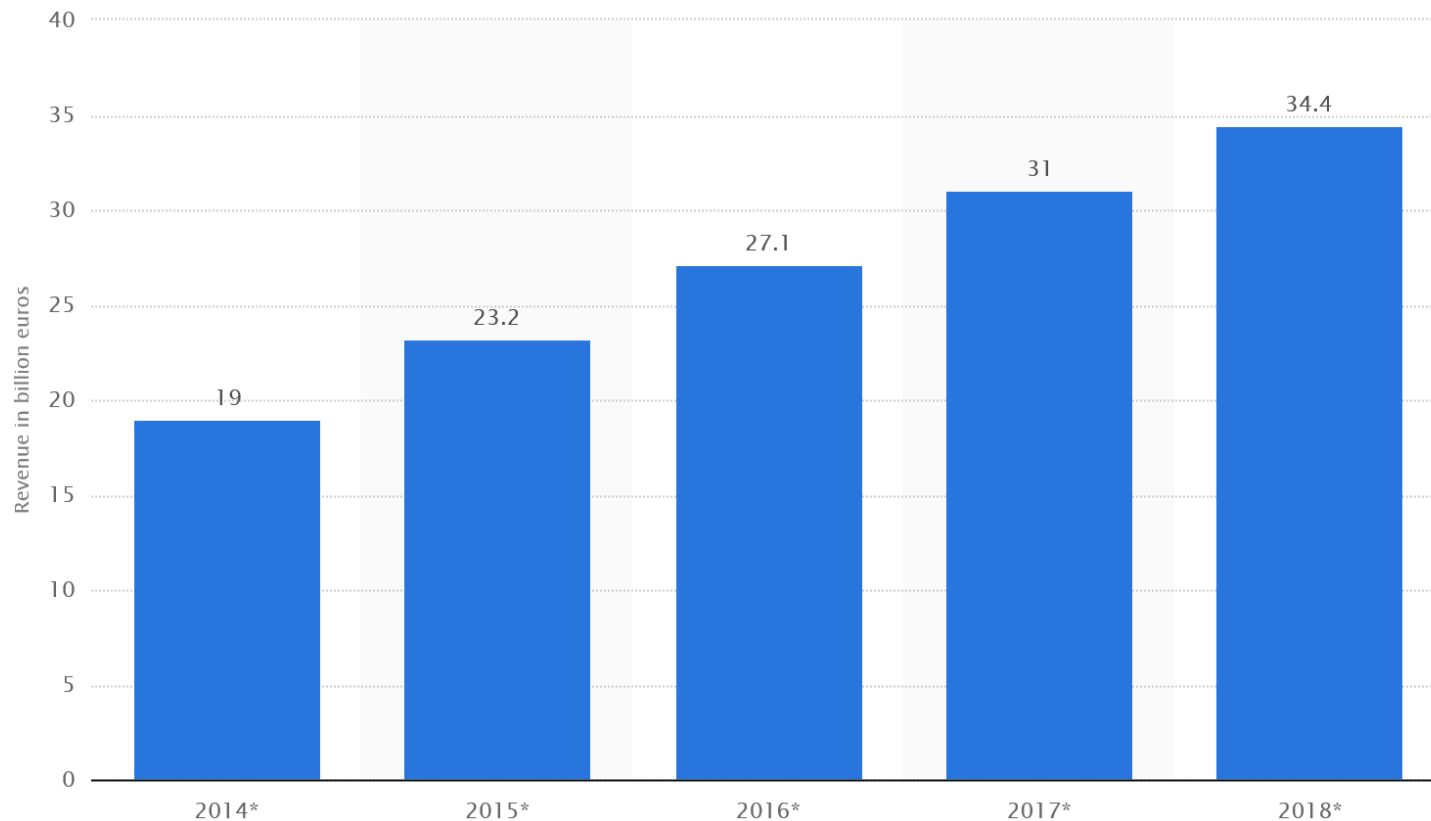
* Source: Analyst firm Forrester

** Source: http://www.nationmaster.com/graph/med_tel-media-televvisions

*** Source: <http://www.statista.com/statistics/259997/global-electronic-home-video-revenue-by-source/>

Technology area and potential users – Market size

IDATE projects that the global VoD service revenue would amount to 19 billion euros in 2014 and 34.4 billion euros in 2018.



Source: <http://www.statista.com/statistics/266000/global-vod-service-revenue/>

Technology area and potential users – Market size

“Services such as Netflix, BBC iPlayer and Amazon Instant Video have created a “dramatic” growth for the video streaming sector, according to a new report from Mintel, with sales reaching £437m in 2014, an increase of 56pc on the year before.

Revenues from video streaming subscriptions should surpass the billion pound mark within a few years, totalling £1.17bn in 2019, compared to £28m a decade earlier.”

Source: <http://www.telegraph.co.uk/finance/newsbysector/mediatechnologyandtelecoms/11482118/Netflix-and-Spotify-to-make-streaming-a-billion-pound-industry.html>

If the portfolio is of interest or you require further information, please contact your ICEBERG relationship manager.

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