Internet of Skills
Democratizing Labor and Empowering Humans

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LAN of Machines vs Internet of Skills

“Industry 4.0”

“Human 4.0”
Yesterday’s Innovation & Standards:
network technologies, audio and video codecs

Proprietary Circuit-Switched Audio & Video Technologies

Standardized Packet-Switched Internet, enabling Economy of Scale

Today’s Innovation & Standards:
low-latency optical & wireless networks, intelligence, tactile codecs

Proprietary (and expensive) Haptic-Edge Technologies

Standardized Internet of Skills, enabling Service Economy of Scale

Fundamental Shift
Technology Components

- Operator(s) with haptic human-system interface (possibly distributed)
- Internet, transmitting audio-visual and haptic information.
- Telecommunications Core and Radio Access Network, and an intelligent Edge-Cloud.
- Haptic edge composed of e.g. remotely controlled robots.

Bi-Directional Haptic Control with perception of low delay

- Command (e.g. velocity)
- Response (e.g. force)

Master Domain

(Optical) Network Domain

Controlled Domain

IEEE P1918.1 Haptic Codec
Delay Challenge

1. Speed of light
2. Serialization delay
3. Buffer/congestion
4. Application

Human VOR

London - Paris

London - LA

Model-Mediated AI

End-to-End Slicing

No Compression
Bandwidth Challenge

Application Encoding Latency

<table>
<thead>
<tr>
<th>Bandwidth</th>
<th>Latency</th>
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<tbody>
<tr>
<td>100ms</td>
<td>10Gbps</td>
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True VR
8K Video
FHD
Cooper’s Law

Wireless capacity increase over past decades: x1,000,000

With roots in the telecoms industry, Room One is a design and technology lab focused on immersive technologies. From unique content to building platforms for future 5G services, we are designing the future of communication.
SDNxSwitch & Cloud @ Slough
5G & Big Data @ King’s College London
Fibre (Janet)
5G Consumer Use-Case Trials
5G Industry Use-Case Trials

SDNx allows dynamic interconnection of physical/virtual experimental resources across different laboratories

- Users will be granted access to virtual slices of physical resources
- Enabling multi-tenancy future internet experimentation on a massive scale
- £16m trials

End-to-End 5G in the UK
Transforming Industries
5G-Cloudified “Hospital-on-Wheels” for Strokes:

- Decouple Imaging from Processing
- Virtualise the Hospital
- Enhance Ambulance Capabilities

Hospital support, leveraging on all forms of B2B and B2C data available on the patient including video from ambulance.

Disrupting Health & Care
Disrupting Health & Care
Disrupting Health & Care

video on www.ericsson.com

MEDICINE WITHOUT BORDERS

WITH DR PROKAR DASGUPTA
CHAIR IN ROBOTIC SURGERY & UROLOGICAL INNOVATION
AND HONORARY CONSULTANT UROLOGICAL SURGEON
Disrupting Performing Arts
Disrupting Performing Arts

video on www.ericsson.com

CONNECTED CULTURE
WITH ALI HOSSAINI
ARTIST, WRITER AND PHILOSOPHER
OFC 2017, Remote Skill, Demo #1

Mischa's Computer as SDN Controller

Mischa's (Presentation) Computer

Luis (ND)
Kostas (KCL)
Maria (KCL)
Laura (MMW)

Internet of Skills

Spotify

STORIES FROM ANOTHER WORLD

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Disrupting Education

5G SDN/NFV

Richard (Opto)
Frank (KCL)
Maria (KCL)
Toktam (KCL)
Ali (KCL)
The “Internet of Skills” will be an enabler for remote skillset delivery and thereby democratize labour globally the same way as the Internet has democratised knowledge.