

# A Five-Country Collaboration of dQ19 (dancingQ19)

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Goo Bon Cheol, CEO Next Inc., & Jeju Island University  
Network Performing Arts Production Workshop 2019  
April 2-4, 2019  
Prague, Czech Republic



# **Tech-Fusion Workshop**

## **Asi@connect and TEIN-CC Project**

### **OUTPUT**

#### **dQ19: Dancing on cyber cloud**

**Intercontinental music and dance performance  
on advanced network**

@ DCC, Daejeon KOREA  
5~6pm(GMT+9) Tue 19 Feb 2019

# Preparation for 5-Country Cyber Performance – DQ9

## Training Programmes

During APAN Meetings  
Hanoi, Vietnam  
Dhaka, Bangladesh



<http://www.ultragrid.cz/en>

## Software for low latency and high-quality video network transmissions

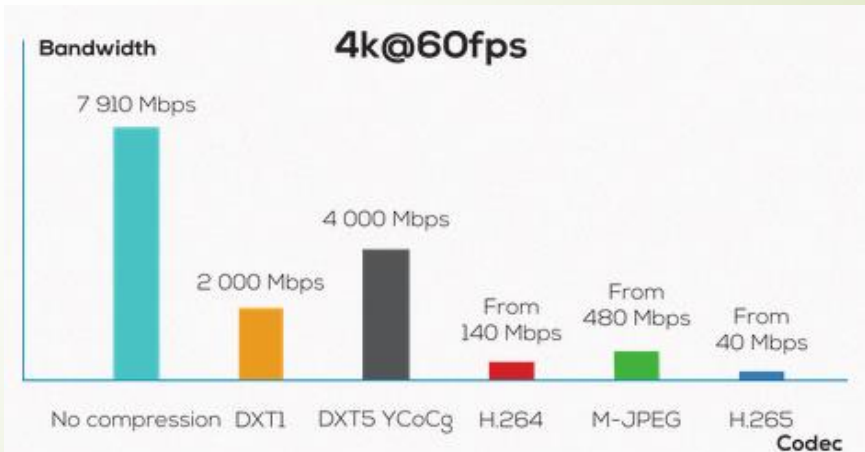
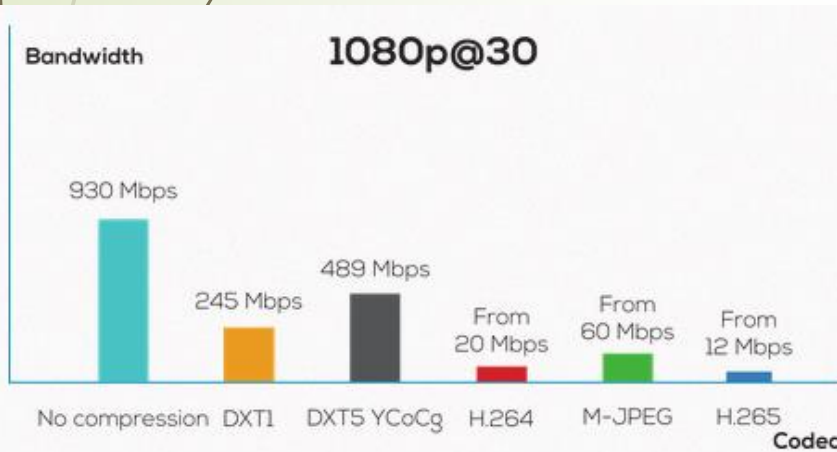
UltraGrid from Laboratory of Advanced Networking Technologies(SITOLA) is a software implementation of high-quality low-latency video and audio transmissions using commodity PC, Mac and Linux hardware. UltraGrid uses uncompressed or very low compression-ratio streams to achieve up to 8K resolution with as low as 100ms end-to-end latency. UltraGrid is used, among others in areas like collaborative environments, medical cinematography, broadcasting application and various educational activities

JackTrip



<https://code.google.com/p/jacktrip/>

JackTrip is a Linux and Mac OS X-based system used for multi-machine network performance over the Internet. It supports any number of channels (as many as the computer/network can handle) of bidirectional, high quality, uncompressed audio signal steaming.



# Participating Countries



Nation	Organization	City	Contact Person	email
			Network Part	
			Performance Part	
Pakistan	PERN	Jamshoro	Waqas Masood Fawad Raza	wmasood@hec.gov.pk fawadraza@hec.gov.pk
			Kamran Abid Muhammad Amir Rafique	kabid@hec.gov.pk marafique@hec.gov.pk
			Bhai Khan Shar Naz Sahito	director@cead.edu.pk sahito_naz@Hotmail.com
India	ERNET	Chennai	Paventhan Arumugam	paventhan@eis.ernet.in
			Arunkumar Kesavan	runa988@gmail.com kesavan@eis.ernet.in
			Naveena Muthukrishnan	m.naveena26@gmail.com
Bangladesh	BdREN	Dhaka	Habibur Rahman	akmhabib@yahoo.com
			Md Sajidul Islam Khandakar Rashedul Arefin Md Mahedi Hasan	sajid@bdren.net.bd arefin@bdren.net.bd mahedi@bdren.net.bd
			Mustakim Abir	khajmaatukuntara@gmail.com
Malaysia	MYREN	Penang	Faridah Noor Mohd Noor	faridahn@gmail.com
			Mr Zulham Ahmad Fadhlul Irham Yusoff	zulham@usm.my irham@usm.my
			Dr Hardy	hardy@usm.my
Vietnam	VinaREN	Hanoi	Nguyen Hong Van	hvan@vinaren.vn
			Pham Thanh Son	thanhson@vinaren.vn
			Nguyen My Huong	huong17@gmail.com
Korea	NEXT Inc.	Daejeon	Boncheol Goo	mgtech@kaist.ac.kr
			Javier Diaz	shaifvier@gmail.com
			Boncheol Goo	mgtech@kaist.ac.kr

# Accommodating 5-Country Cyber Performance – DQ9

## 1. Time difference

- Base site: Daejeon in Korea
- From West to East:
- Pakistan – India – Bangladesh – Vietnam – Malaysia
- 30 minutes – 60 minutes between each site
- 1 hour – 4 hours behind Korean time



# Time Zone (Tue 19 Feb 2019, No DST)



**5pm**  
**Daejeon**  
**KR(GMT+9)**



**1pm**  
**Jamshoro**  
**PK(GMT+5)**

**1:30pm**  
**Chennai**  
**IN(GMT+5:30)**

**2pm**  
**Dhaka**  
**BD(GMT+6)**

**3pm**  
**Hanoi**  
**VN(GMT+7)**

**4pm**  
**Penang**  
**MY(GMT+8)**

# Accommodating 5-Country Cyber Performance – DQ9

## 2. A range of band width capacity

Sub Venue	Band Width	(Estimated) Path
PK	1 Gbps	PK → SG → HK → KR
IN	1 Gbps	IN → SG → HK → KR
BD	45 Mbps 1 Gbps	Path 1: BD → SG → HK → KR Path 2: BD → IN → SG → HK → KR
MY	10 Gbps	MY → JPN → KR
VN	1 Gbps	Hanoi → Hongkong → Korea



## Accommodating 5-Country Cyber Performance – DQ9

### 3. Venue for transmitting the sound & Quality

Country	Venue Type
PK (Jamshoro)	Mini Auditorium
IN (Chennai)	Lecture Hall
BD (Dhaka)	Conference Room
MY (Penang)	Recording Studio
VT (Hanoi )	Meeting Room

# Network Path



Venue	IP address for prior test (End Point)
PK	121.52.156.115 , 121.52.156.116
IN	202.141.25.10
BD	103.28.120.19
MY	202.170.58.30
VN	Ip: 119.18.130.30 gw: 119.18.130.1 sm: 255.255.255.224
KR	121.188.223.31 (jeju)

Sub Venue	Band Width	(Estimated) Path	Venue Type	Geographic End Point
PK	1 Gbps	PK → SG → HK → KR	Mini Auditorium	The Centre of Excellence in Arts and Design (CEAD), Jamshoro Sindh Pakistan
IN	1 Gbps	IN → SG → HK → KR	Lecture Hall	3 <sup>rd</sup> Floor, IIT Madras Research Park Chennai, India
BD	45 Mbps 1 Gbps	Path 1: BD → SG → HK → KR Path 2: BD → IN → SG → HK → KR	Conference Room	4 <sup>th</sup> Floor, UGC Bhaban, Agargaon, Dhaka, Bangladesh
MY	10 Gbps	MY → JPN → KR	Recording Studio	Dewan Budaya, Universiti Sains Malaysia Penang, Malaysia
VN	1 Gbps	Hanoi → Hongkong → Korea	Meeting Room	7 <sup>th</sup> Floor, 24 Ly Thuong Kiet, Hanoi, Vietnam

## Accommodating 5-Country Cyber Performance – DQ9

### 4. Testing different sites and equipment

- From local sites to KR
- From all sites to actual venue – Daejeon, KR

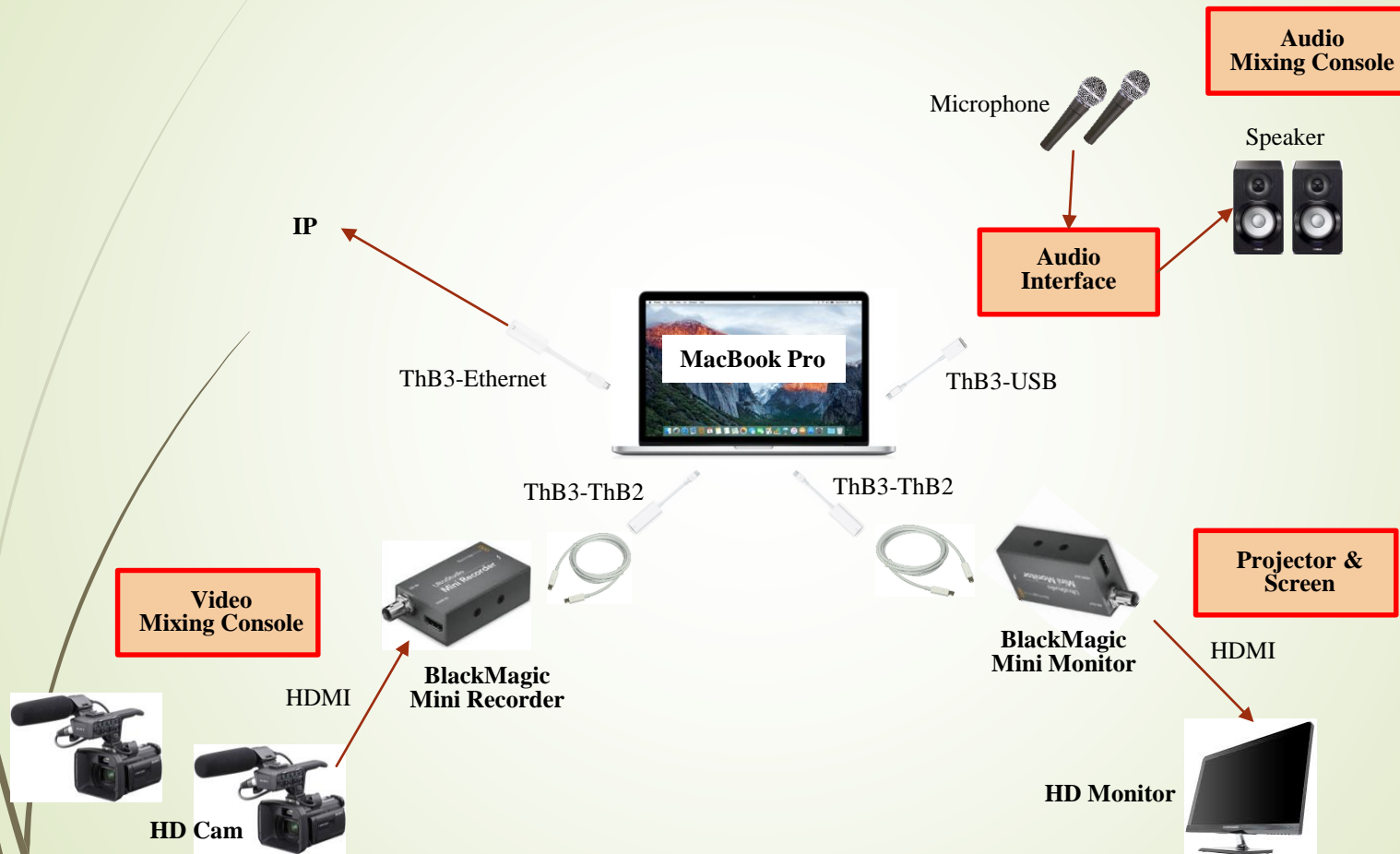
(Challenging connectivity ‘incidents’)

# vLAN setup and definition of relevant R&R

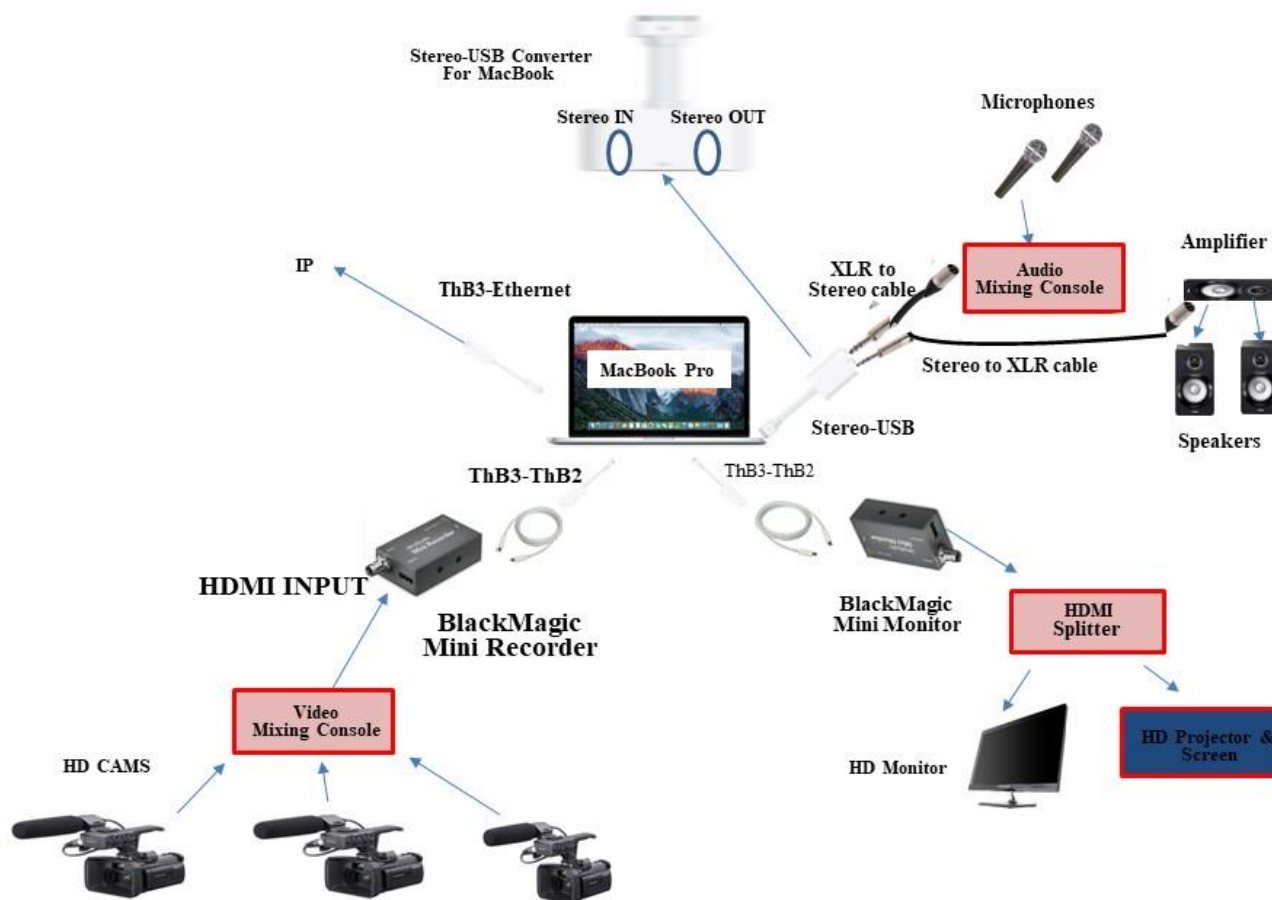


Type	Points	Bandwidth	R&R (contact info.)	# of vLAN
Back-bone	KREONet2 HK – TEIN HK	10G	KREONet2 NOC & TEIN*CC/NOC	1331-1335
	VinaREN – TEIN HK	1G	TEIN*CC/NOC, VinaREN	1334
	TEIN HK – TEIN SG	10G	TEIN*CC/NOC - Zhonghui Li, lizhh@cernet.edu.cn	1331,1332,1333,1335
	TEIN SG – MyREN	1G	TEIN*CC/NOC, MyREN	1332
	TEIN SG – BdREN	45M	TEIN*CC/NOC, BdREN	1333
	TEIN SG – PERN	1G	TEIN*CC/NOC, PERN	1331
	TEIN SG - NKN	2G	TEIN*CC/NOC, NKN	1335
Last mile	KREONet2/KREONET - Stage	10G/1G	KREONet2/KREONET - Buseung Cho, bscho@kisti.re.kr - Chanjin Park, pcj0722@kisti.re.kr	1331-1335 (991)
	MyREN – Stage		MyREN - Sharizan Sumuui, sharizan@myren.net.my - Hamid, hamid@myren.net.my	1332
	VinaREN – Stage	1G	VinaREN	1334
	BdREN – Stage		BdREN	1333
	PERN – Stage		PERN	1331
	NKN – Stage		NKN & ERNET - NKN team, support.tn@nkn.in, s.gopinath@gov.in - Kesavan, kesavan@eis.ernet.in	1335

# Basic Configuration (@Each sub-venue site)

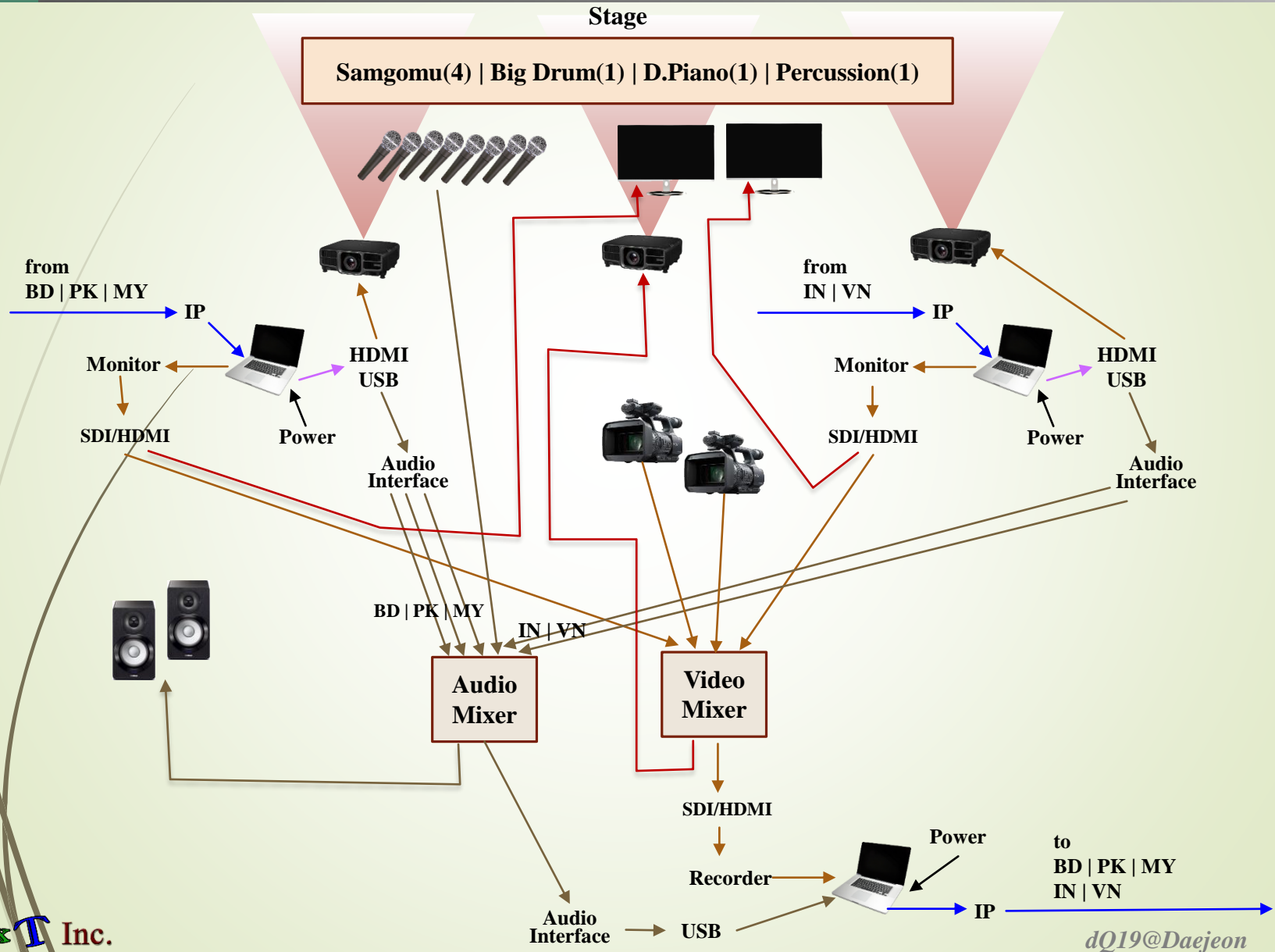


## Basic Configuration (Pakistan site)

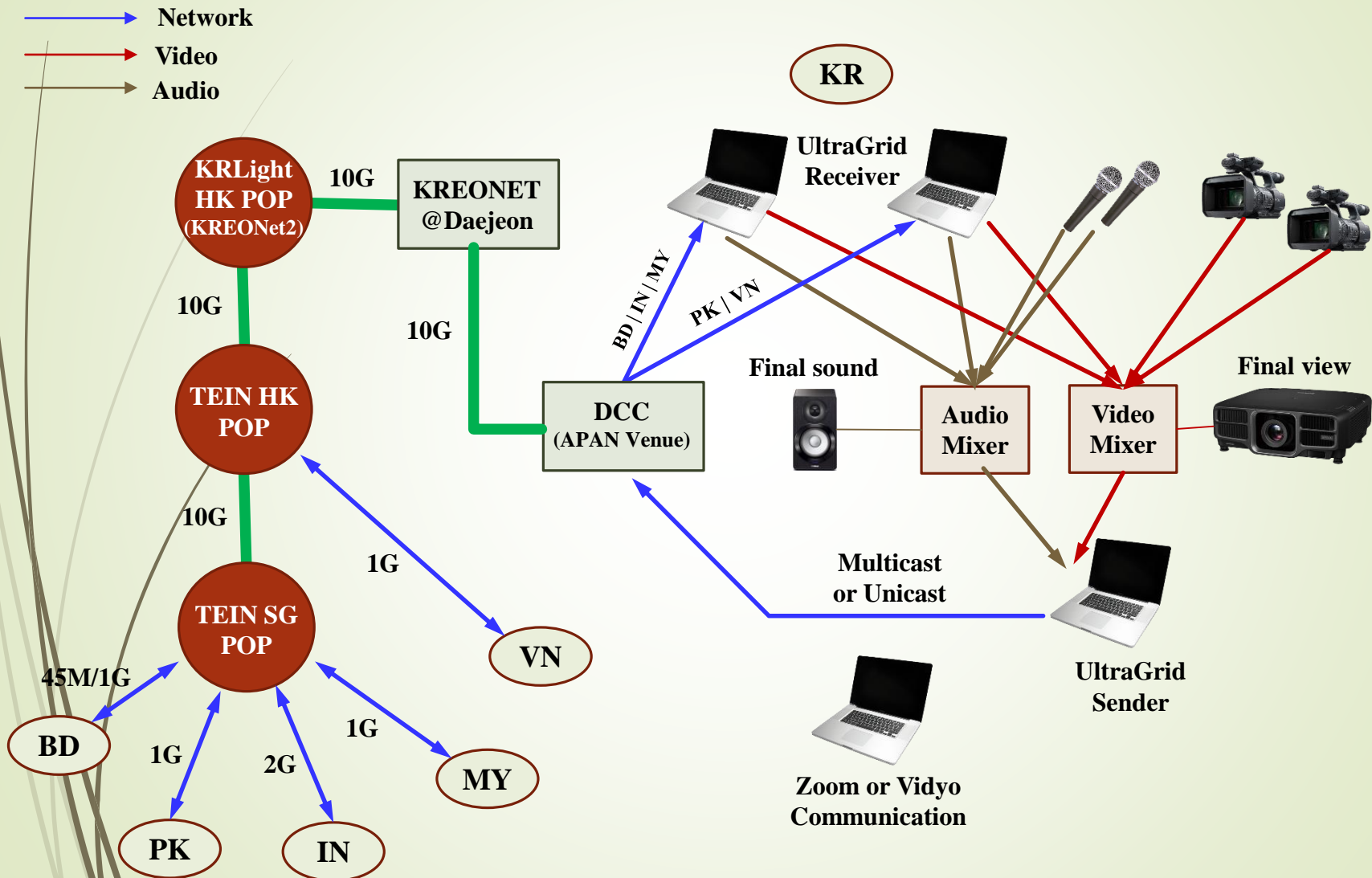




# The details of the Configuration (KR site)



# VLAN network & Basic Configuration (KR site)



# Set up @Main Venue



**Stage**

**Title**

**KR**

**MY**

**VN**

**Final View**

**Logos**

**BD**

**IN**

**PK**

**Floor**



**Lighting**



**Lighting**



<http://www.ultragrid.cz/en>

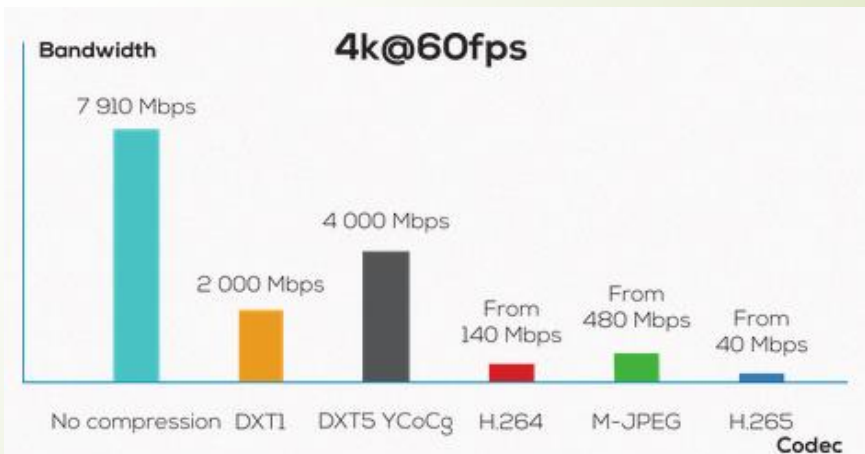
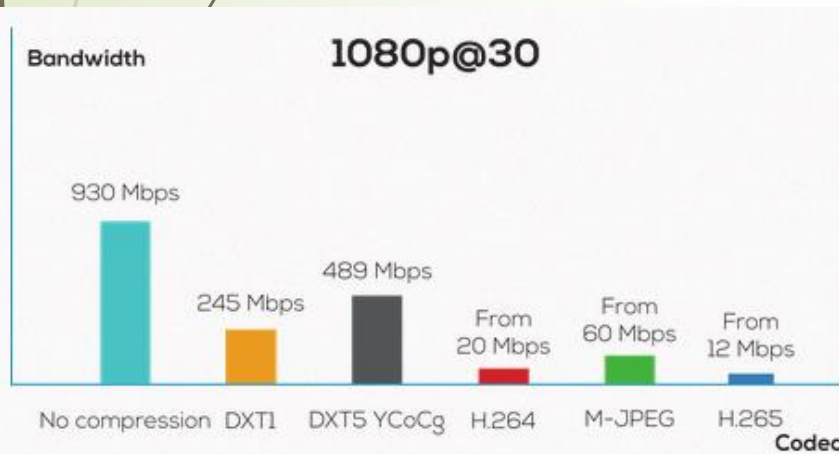
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# Prior Test



WED 16 January 2019

5pm(Hanoi/VN)/7pm(Jeju/KR)

VN : 119.18.130.25 Skype : minhkeo1983

KR : 121.188.223.31 / 121.188.240.115 Skype : ctnet.goo

Bi-directional transmission using Built in camera, gl, microphone and speaker in MacBook Pro

\* some problems with audio transmission (one way is OK, but disconnected for bi-directional connection.)



FRI 18 January 2019

3.30pm(Chennai/IN)/7pm(Jeju/KR)

IN : 202.141.25.10 (IP pool 202.141.25.0/24) Skype : kesavan R

KR : 121.188.223.31 / 121.188.240.115 Skype : ctnet.goo

Bi-directional transmission using Built in camera, gl, microphone and speaker in MacBook Pro

\* successful



TUE 22 January 2019

3pm(Jamshoro/PK)/7pm(Jeju/KR)

PK : 111.68.100.7 Skype : fawad raza

KR : 121.188.240.94 / 112.184.31.165 Skype : ctnet.goo

Bi-directional transmission using Built in camera, gl, microphone and speaker in MacBook Pro & Audio interface,

\* successful



# Prior Test



SUN 10 February 2019

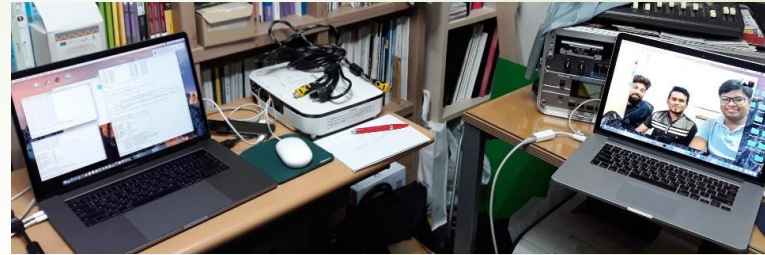
4pm(Dhaka/BD)/7pm(Jeju/KR)

BD : 103.28.120.198 Skype : szd.141 and Mahedi.cse

KR : 121.188.223.32 / 121.188.221.166 Skype : ctnet.goo

Bi-directional transmission using Built in camera, gl, microphone and speaker in MacBook Pro

\* Only audio was able to transmitted because video transmission is blocked between BD and KR.



WED 13 February 2019

6:30pm(Kuala Lumpur/MY)/7:30pm(Jeju/KR)

MY : 119.40.121.103 Skype : rizalkhanafie

KR : 14.39.116.126 Skype : ctnet.goo

Bi-directional transmission using Built in camera, gl, microphone and speaker in MacBook Pro

\* successful





# Accommodating 5-Country Cyber Performance – DQ9

## Communication and cultural issues

- Interpretation issues
- Choice of songs and performances
- Length of performance
- Understanding instructions
- Protocol – cultural gatekeepers

# Artist (BD)



Mustakim Abir  
Bansuri (Flute)



Ishrar Habib  
Violin



Chironjit Saha  
Tabla



Emon Goswami  
Guitar and Vocal



Paromita Riya  
Vocal

# Artist (IN)



Naveena Muthukrishnan  
Classical dance



Swetha Sridhar  
Nattuvangam



Bhuvaneshwari s  
Carnatic vocal



Bhavana s  
Carnatic vocal



Kiran R Pai  
Mridangam



Arya Nagarajan  
Violin



# Artist (PK)



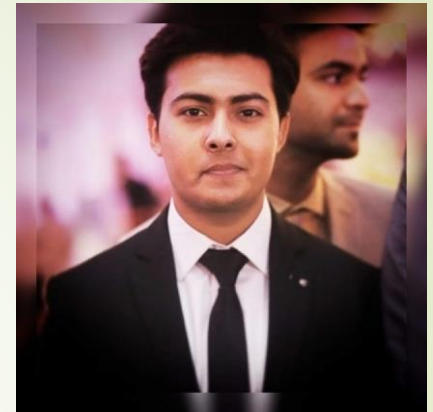
Sada Bahar  
Vocal



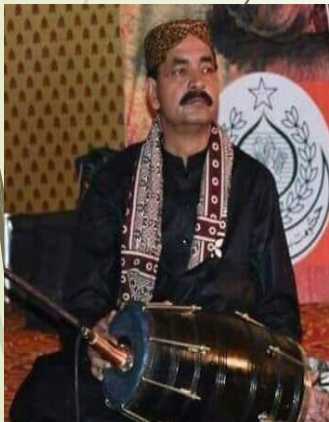
Shoukat Ali  
Vocal



Reshman Parveen  
Vocal



Rozam Siddiqui  
Vocal



Mohammad Khan  
Dholak



Irfan Ali  
Tabla



Sabir Ali  
Keyboard



Syed Mutahir Hussain  
Guitar



Nazakat Ali  
Flute

## Artist (MY)



Andy Siti  
Vocal



Faisal Mohd  
Guitar



Nick Fadriel Anak John  
Sapeh





## Artist (VN)



Nguyen My Huong  
Violin



Nguyen Dinh Huong  
Violin



Nguyen Thu Binh  
Violin & Viola



# Artist (KR)



Chanhee Yang  
Performer



Hyeji Noh  
Performer



Geumseo Yun  
Performer



Wonkyoung Kim  
Performer



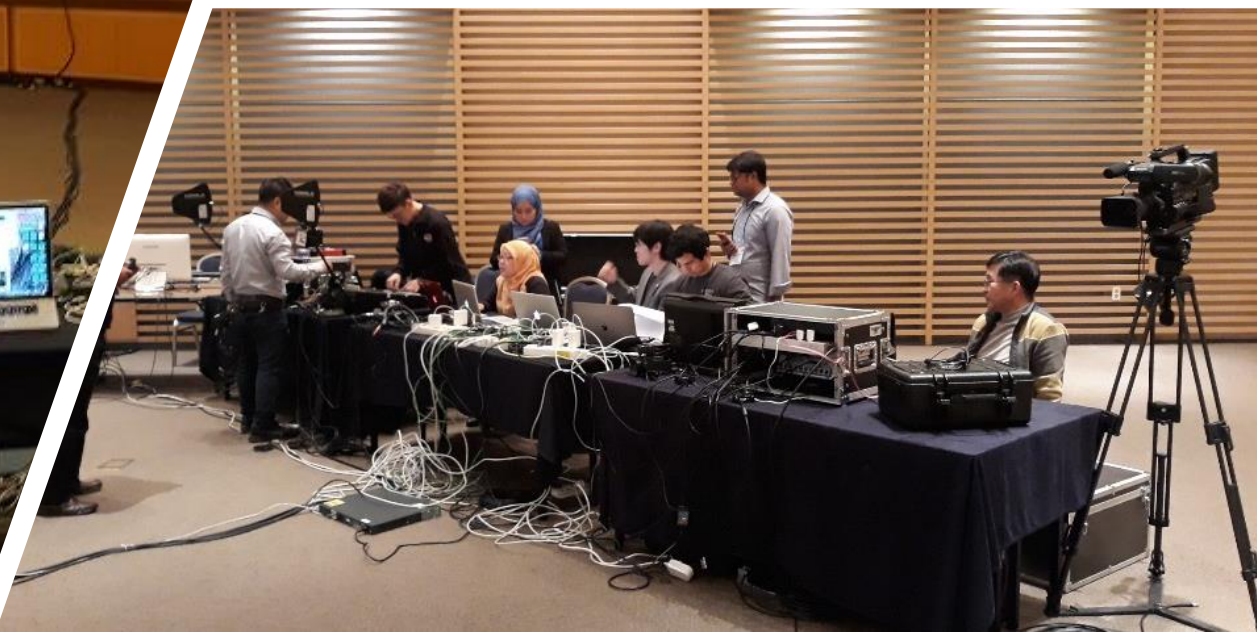
Jinyong Joung  
Big Drum



Junseok Kang  
Percussion



Namhoon Kim  
Piano







# THE DQ19 TEAM







# dQ19: Dancing on cyber cloud

## Intercontinental music and dance performance on advanced networking

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5~6pm(GMT+9) Tue 19 Feb 2019



Centre of Excellence in  
**art & design**,  
Mehran University of Engineering,  
& Technology, Jamshoro





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Hong Kong	Malaysia	Taiwan
India	Nepal	Vietnam

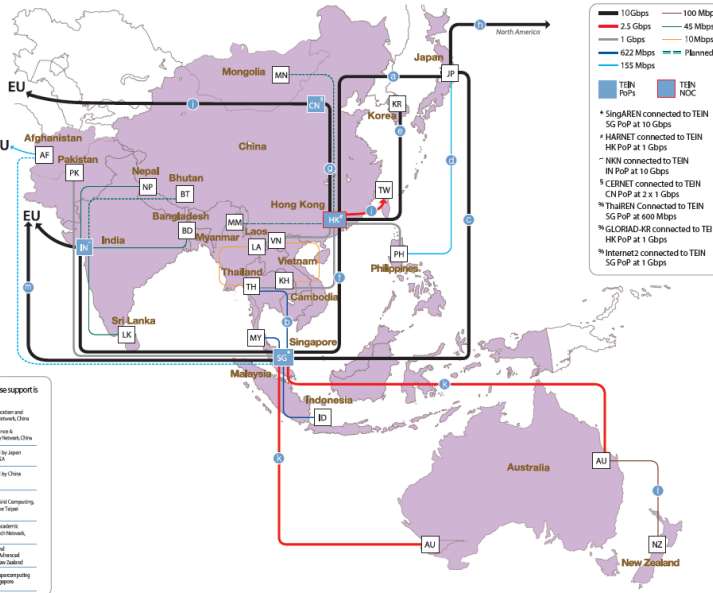
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**Thank You**  
IT/Technical staff  
Artists  
NRENs  
Tech-Fusion Partners  
Participants  
For the support  
**NEXT Inc.**



**Map of  
KREONET & GLORIAD**

Global Ring Network for Advanced Applications Development





Total running time  
50m

- ☐ Opening Ceremony (2m)
- ☐ Introduction to Live CP 2019 (5m)
  - ◇ CP 1 : **Streaming (1 way) (15m = 5m\*3countries) : BD, PK and IN**  
Traditional music and dance of each country one after another  
BD : Flute, Violin, Tabla, Guitar and Vocal  
PK : Vocal, Tabla, Dholak, Keyboard, Guitar and Flute  
IN : Dance, Nattuvangam, Vocal, Maridangam and Violin
  - ◇ CP 2 : **Interaction (3 way) (5m) : MY, VN & KR**  
Winter sonata – From the beginning until now, one of K-pops  
MY : Vocal, Guitar and Sapeh  
VN : 3 string instruments  
KR : Vocal, Piano and Percussion
  - ◇ CP 3 : **Collaboration (Multi) (10m) : 5 countries and KR**  
Take me home country roads by John Denver  
At the start, all artists perform together (music and dance),  
and then each country plays one verse one after another,  
at the end, all participants perform together again.
  - ◇ **Final performance : (5m) KR**  
Samgomu, korean traditional music and dance
- ☐ Closing Address (3m)
- ☐ Photo Time (5m)

# **dQ19: Dancing on cyber cloud**

## **Intercontinental music and dance performance on advanced network**

Video Presentation