NREN update

NREN: Pakistan Education & Research Network (PERN)
Country: Pakistan
Presenter: Naveed Tahir

The 3rd Asi@Connect Project Meeting
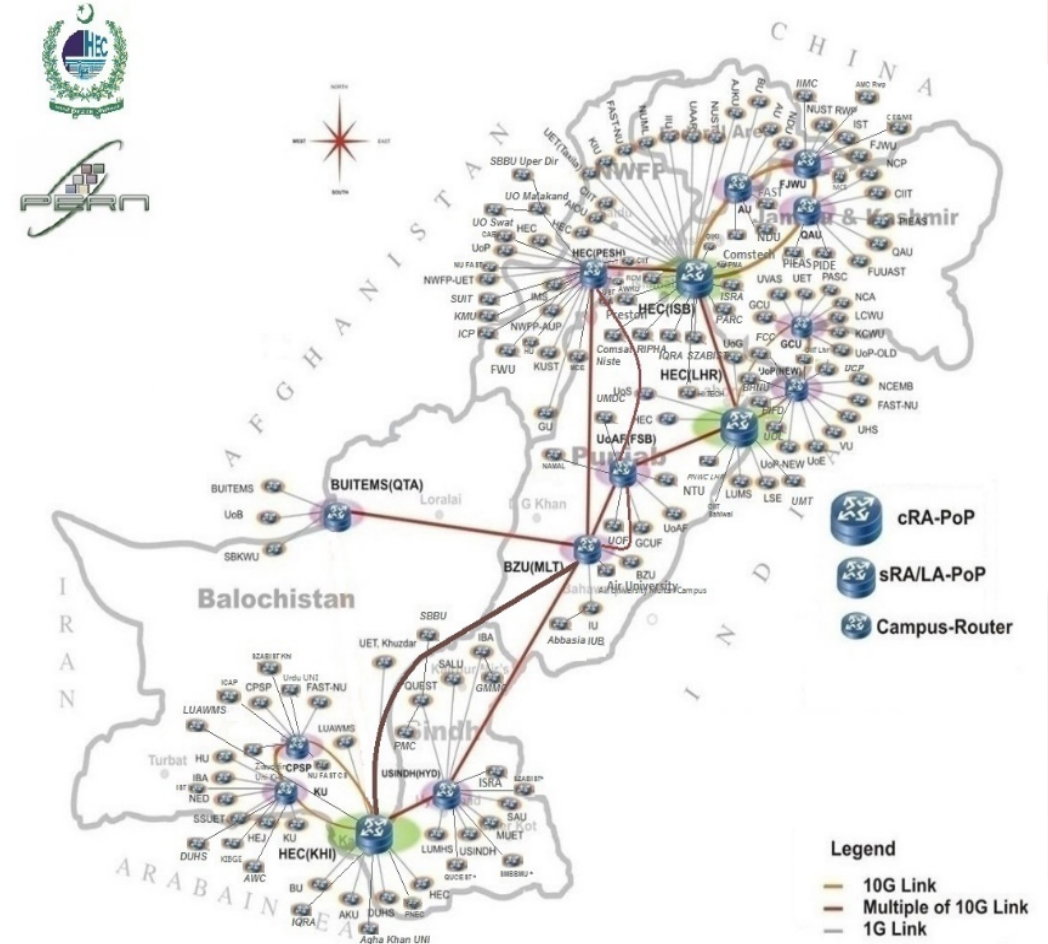March 26 2018
Biopolis, Matrix Building, Singapore
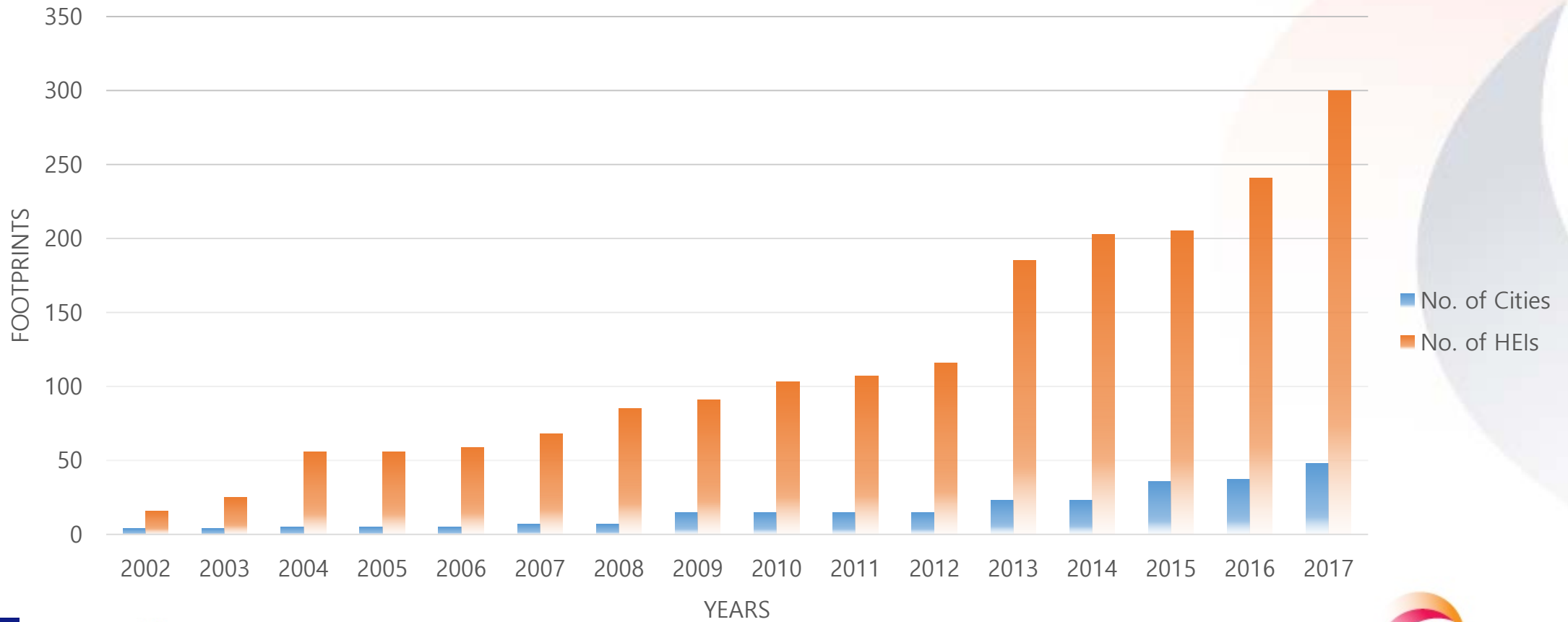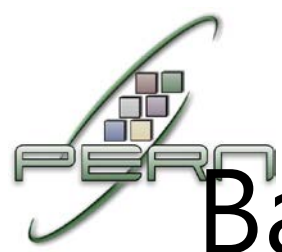
Higher Education Commission, Pakistan

- ❖ **Number of HEIs connected to PERN:** ≈ *300*

- ❖ **PERN Footprints:** *48 Cities*

- ❖ **Backbone:** *10 Gbps*

- ❖ **Maximum Bandwidth Allocated:** *1.5 Gbps*

- ❖ **Minimum Bandwidth:** *50 Mbps*

- ❖ **Avg Bandwidth Allocated to HEI:** *155 Mbps*

Legend
- — 10G Link
- — Multiple of 10G Link
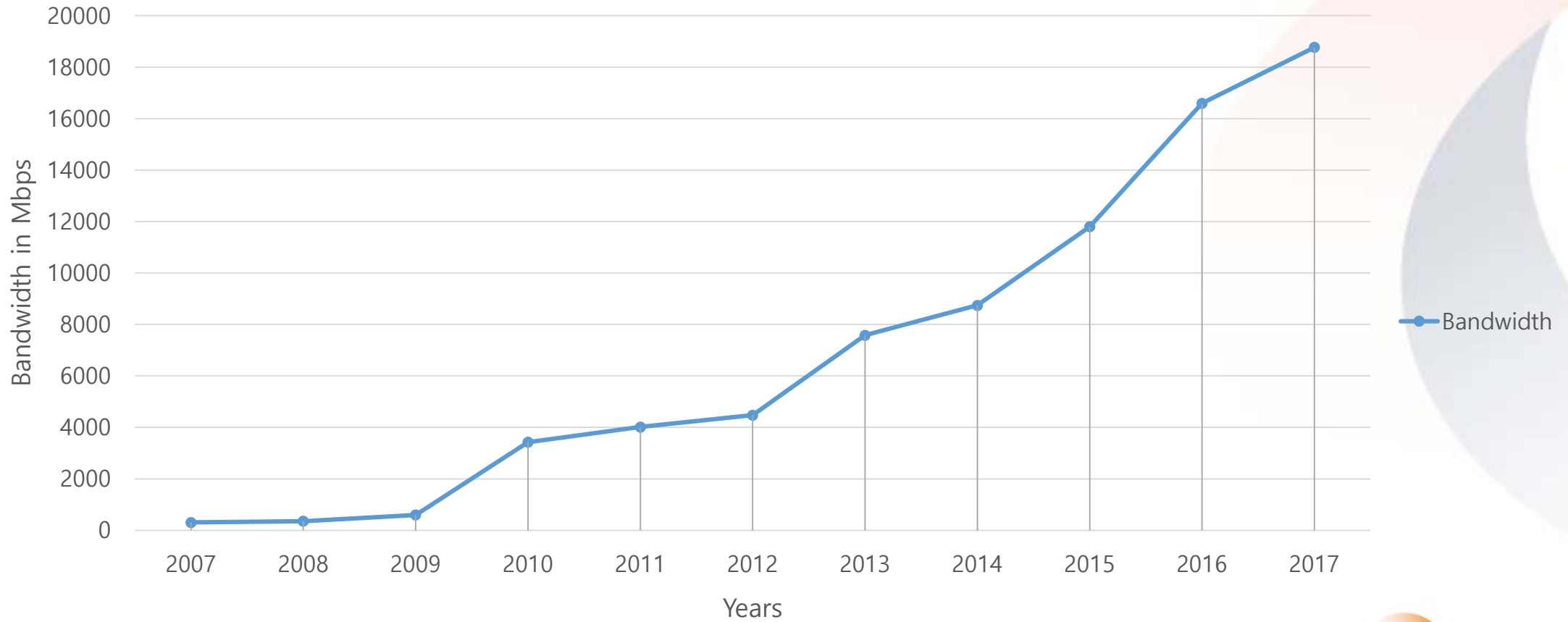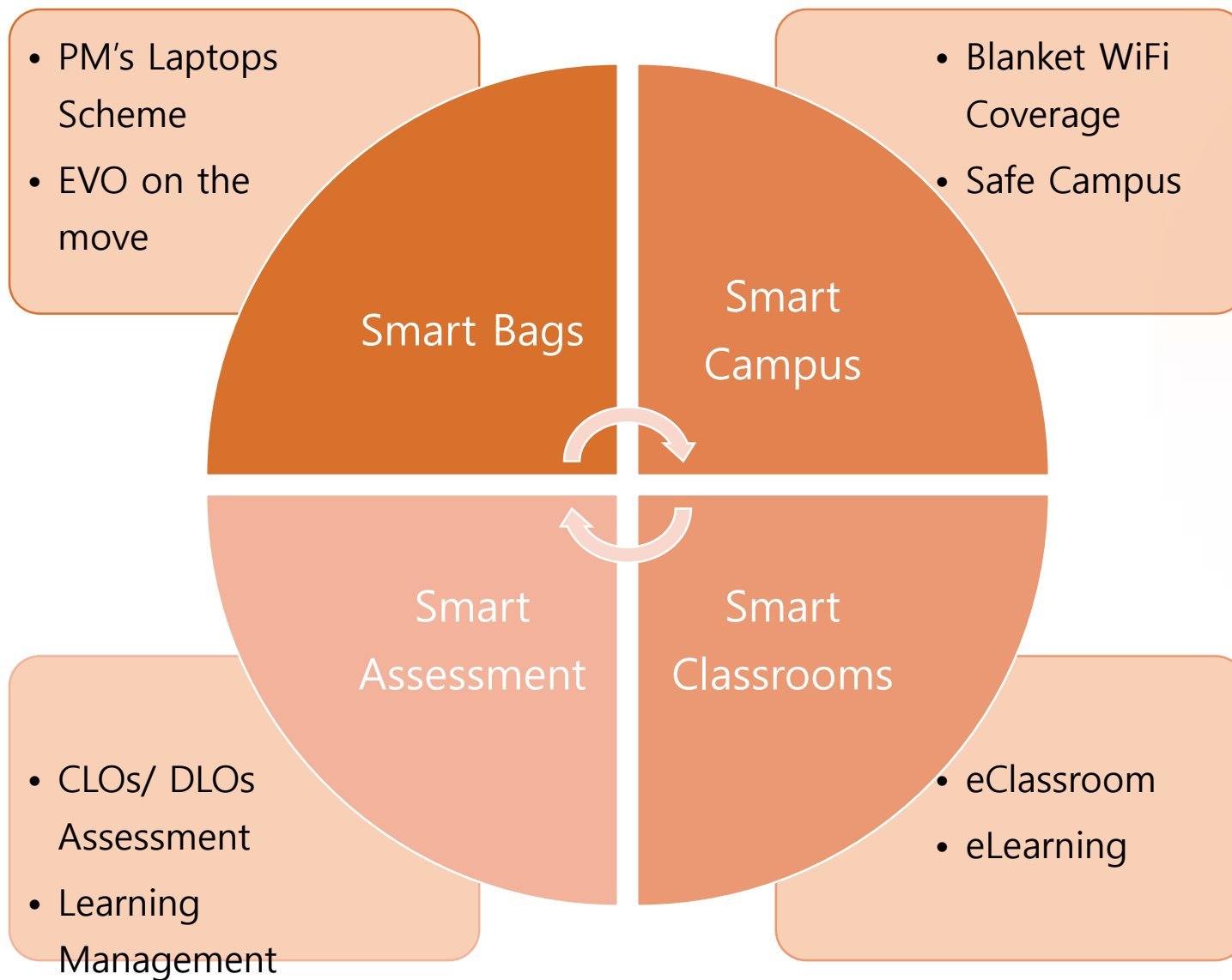- — 1G Link

- cRA-PoP
- sRA/LA-PoP
- Campus-Router

Expansion of PERN Footprints

Bandwidth Distribution to HEIs

Smart Education through Smart Universities

- PM's Laptops Scheme
- EVO on the move

Smart Bags

- Blanket WiFi Coverage
- Safe Campus

Smart Campus

- CLOs/ DLOs Assessment
- Learning Management

Smart Assessment

Smart Classrooms

- eClassroom
- eLearning
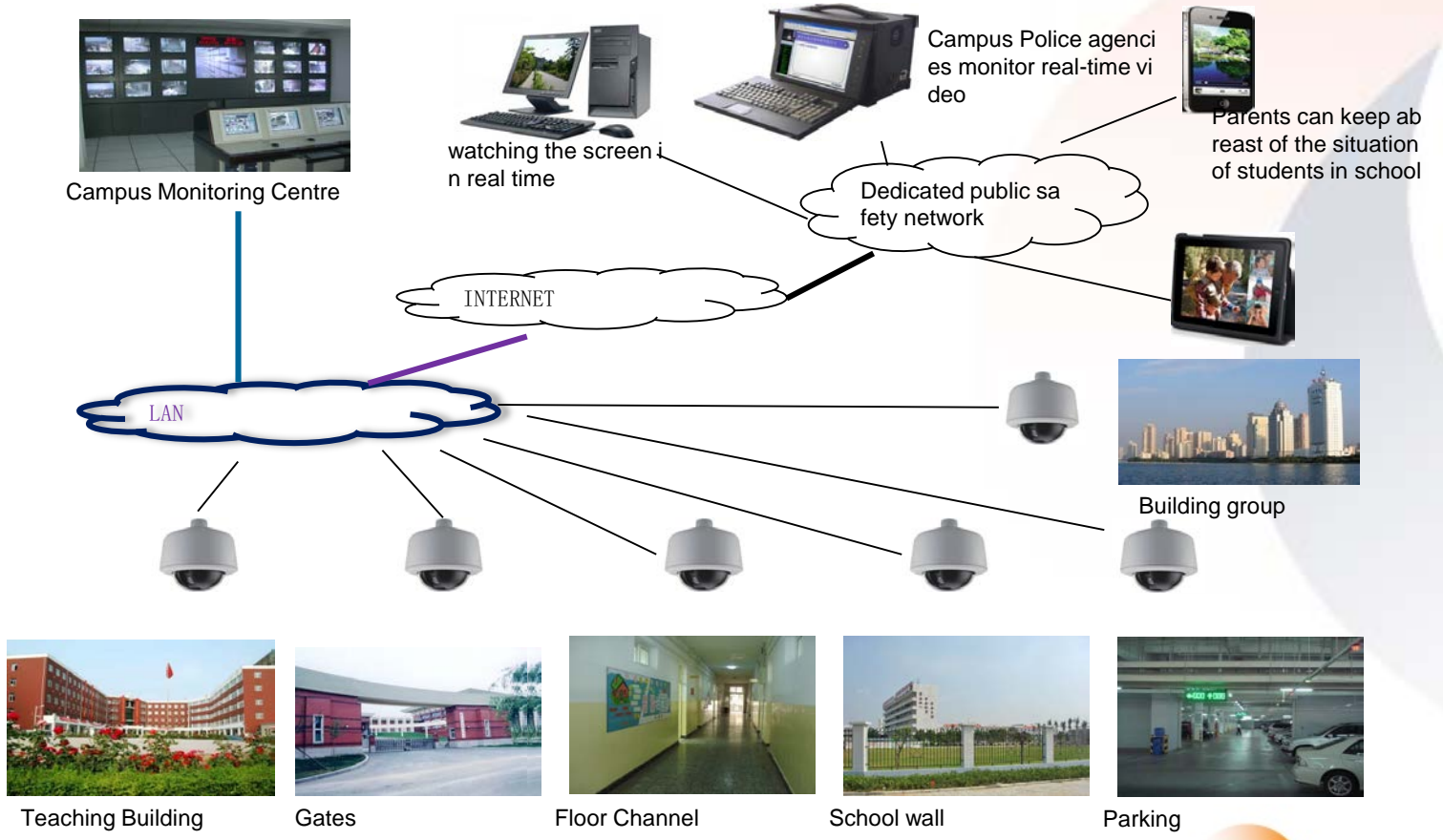
Smart Campus: Blanket WiFi Coverage @ HEIs
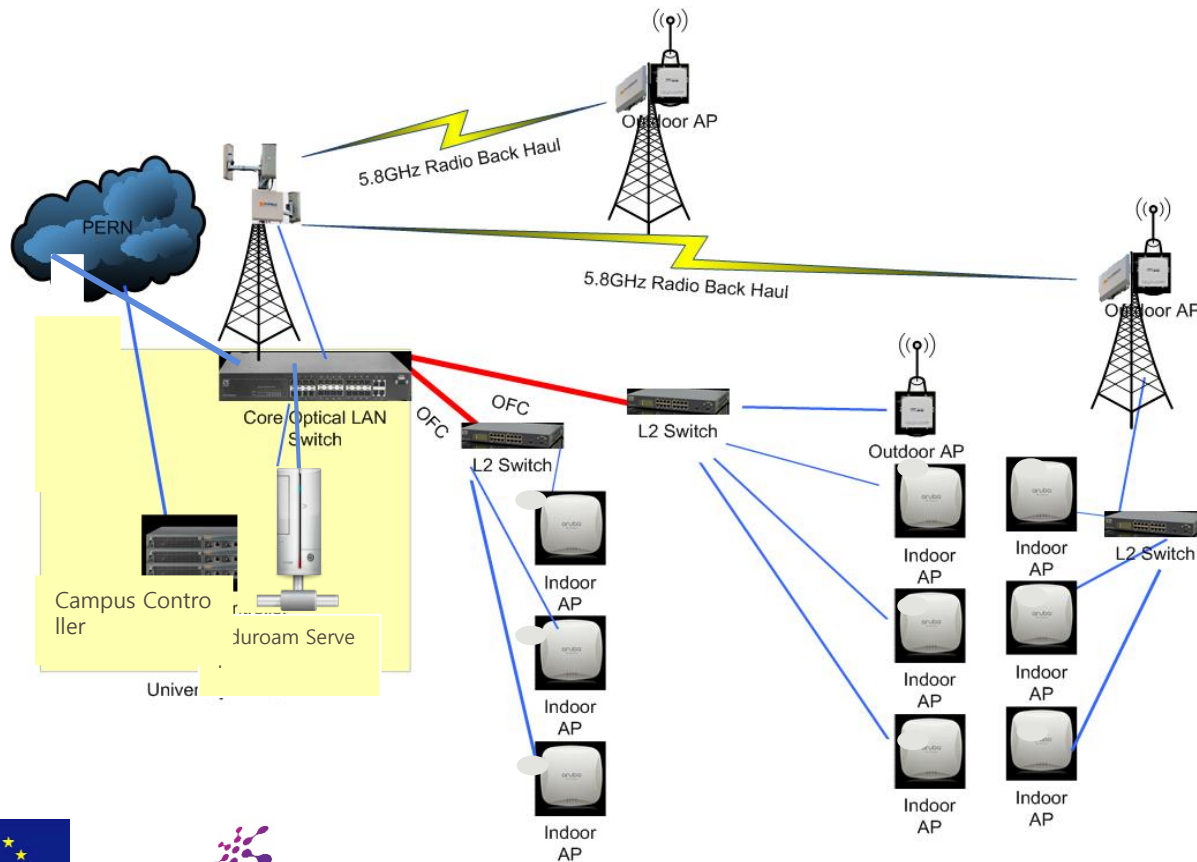
Safe Campus Solution

- ➡ Real-time monitoring
- ➡ Video Query
- ➡ Remote patrol
- ➡ Remote Intercom
- ➡ Remote alarm

Campus Monitoring Centre

watching the screen in real time

Campus Police agencies monitor real-time video

Parents can keep abreast of the situation of students in school

Dedicated public safety network

INTERNET

LAN

Building group

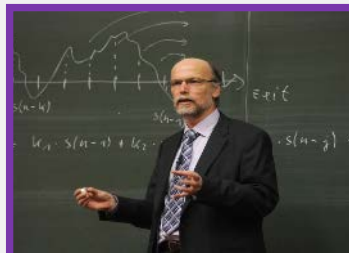Teaching Building

Gates

Floor Channel

School wall

Parking

Smart Classrooms: Interactive & Online Learning Environment

Outreaches quality courses with real-time interactions and resources sharing. Courses live streamed and recorded for VoD.

Extending Real Classroom Experience

Content Development

Distance Learning

Sub-campus Connect

Real-time interaction among universities, providing immersive experience.

Departments Faculty Sharing

Interaction between departments with data exchanging on the same curriculum.

Extend Visiting Faculty

Distance instruction among universities. Academic seminars between universities.

Remote Interactive Students

Access real time class from remote place though internet. Routine education.

Content Development

Automatic recording and uploading. No need to transcode.

Distance Learning Students - VOD

No more DVDs and deliveries, enjoy more latest recorded high quality lectures.
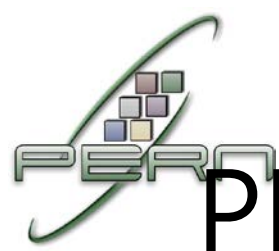
Feedback

Student can feedback on recorded lectures and marking on content quality.

Education Equity   Innovative Education   Online Learning   Distance Education

PERN 3 Scope

1. Expansion
   - New HEI's / Campuses/ Colleges
   - Country west leg connectivity (Gwadar to Gilgit)

2. Sustainability of Existing Infrastructure
   - Improvement in SLA (Long Haul Ring outages)
   - Enhancement of Core capacity
   - Core Active Network Upgradation

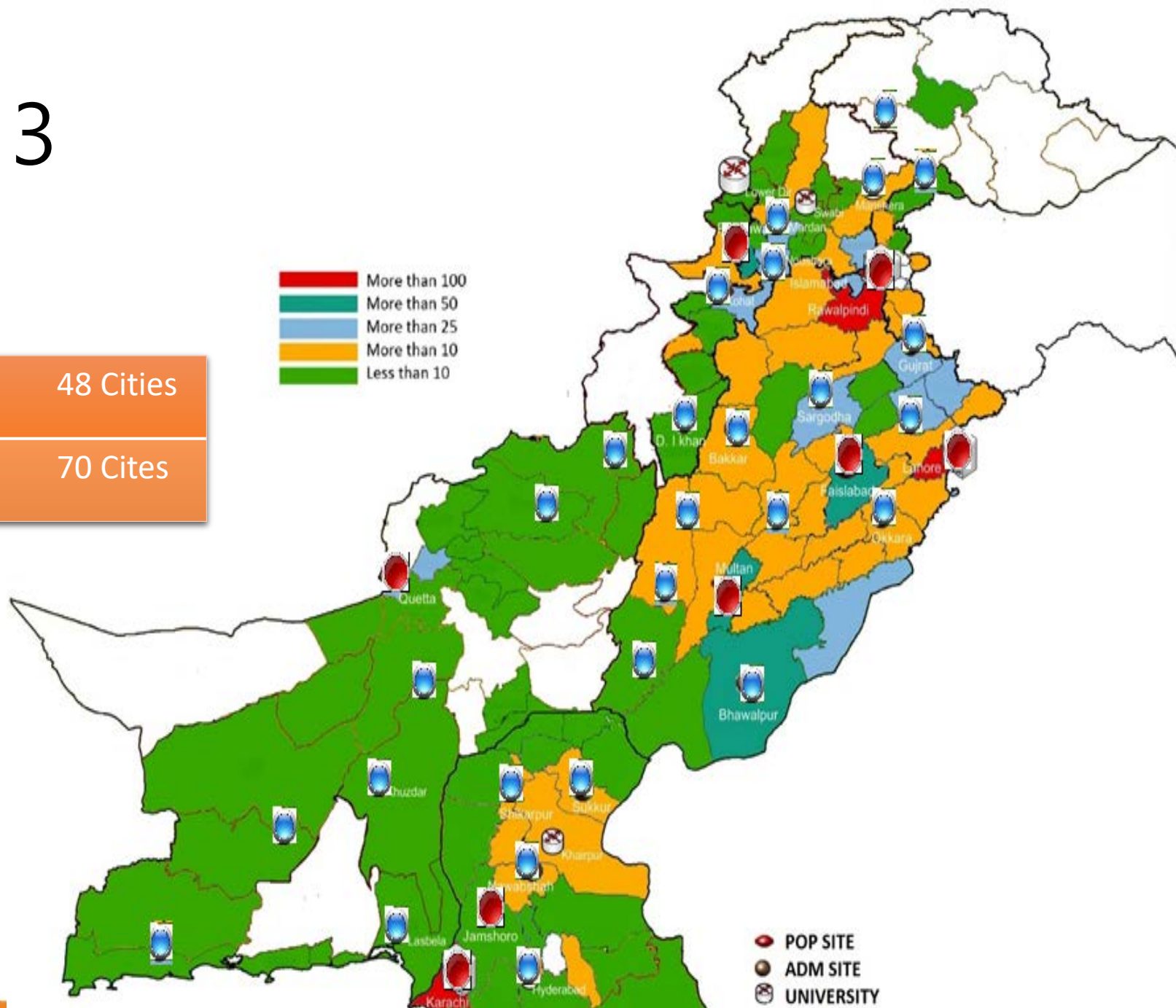3. HEI's Services Enhancement
   - Centralized Services to HEI through PERN
     - Data Center for Cloud, SUP, VDI, Safe Campus
     - Establishment of CSIRC (Computer Security Incidence Response Center)

PERN 3

PERN2 footprints	48 Cities
PERN3 footprints	70 Cites

Legend:
- More than 100
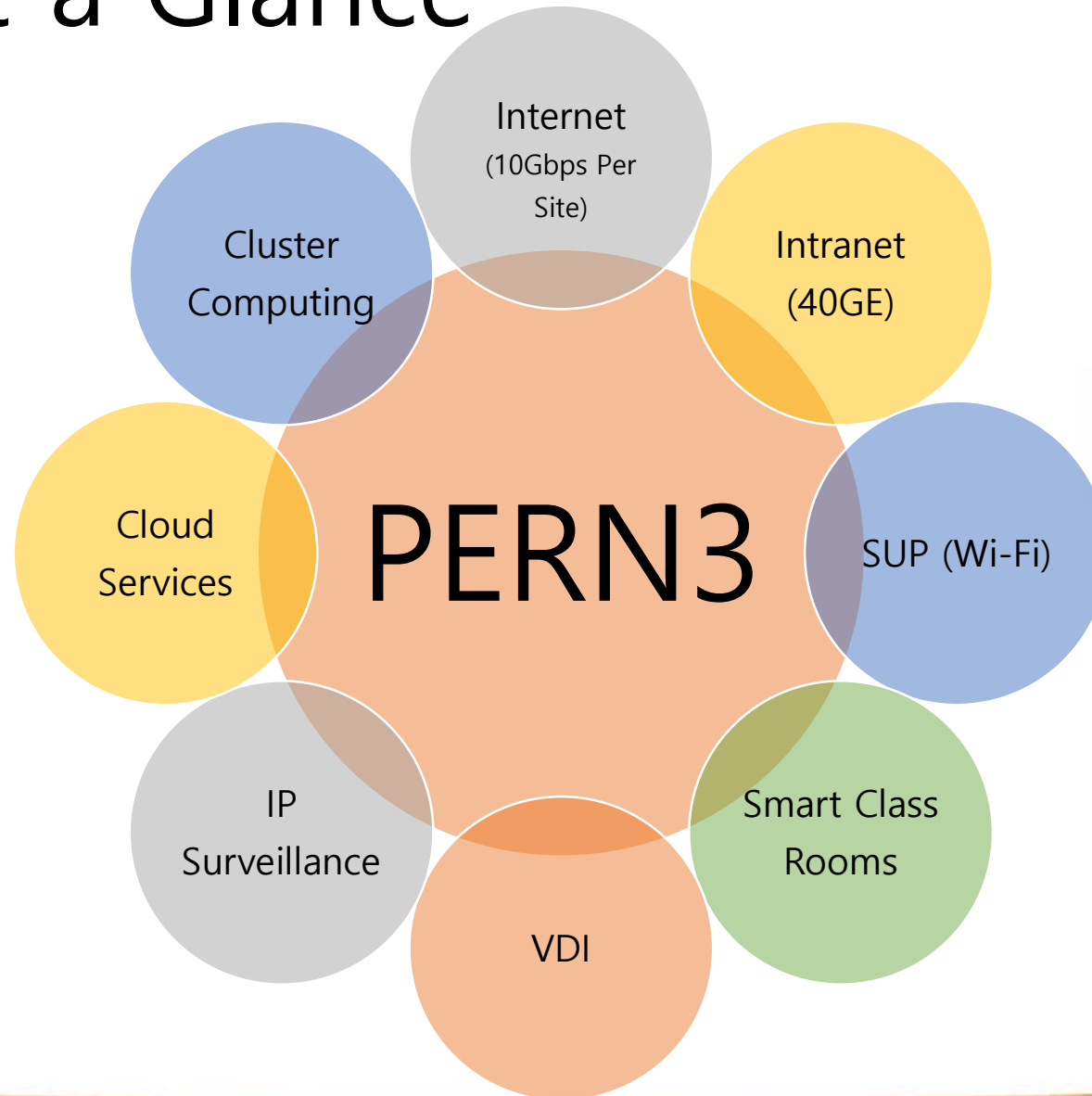- More than 50
- More than 25
- More than 10
- Less than 10

- POP SITE
- ADM SITE
- UNIVERSITY

PERN 3 at a Glance

Thanks