



# SHOA (Iran NREN)

National Research and Education Network

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# What are NREN's

- National Research Education Networks
- Closed user groups with specific needs
- Platform for collaboration at local, regional and global level
- Dedicated to research and education
- Infrastructure either owned or leased from telecom and cable operators
- Different from commodity (commercial) Internet, but use same technologies
- But NRENs generally also provide commodity Internet to their members

# SHOA : Iranian NREN

- SHOA is a National Research and Education Network (NREN) is a specialized dedicated to supporting the needs of the research and education communities.
- SHOA has license from Iranian Communication Regulatory Authority (CRA) as a one telecom operator.
- SHOA is offering academic institutions connectivity to other education networks around the world.
- In addition to connecting universities, SHOA can connect hospitals, library and research institutions together across the Iran with an effective cost model.
- SHOA is member of Economic Cooperation Organization (ECO)  
NREN

# SHOA History

- **First Generation (1998) :**
  - Scope : **ONLY Connection**
  - Based on Iran Telecommunication Company Network (NOT CLOSED NETWORK)
  - Core Network Speed : 10/100Mbps
  - Access (Customer) Speed : 2Mbps
  - Coverage : More Provincial Capitals
- **Second Generation (2007):**
  - Scope : **NETWORK**
  - Implement Network Based on the Dark-Fiber and NREN Special Devices)
  - Core Network Speed : 10Gbps
  - Access (Customer) Speed : 1Gbps
  - Coverage : Only in The Capital of Iran (Tehran City)

# SHOA History

- **Third Generation (2016 – Current) :**

- For Network Expansion and Upgrading 2<sup>nd</sup> Generation Technology To New One, Based on the Successful Global Investment Method, Government Decided to be implemented in Partnership with the Private Sector.
- This Partnership (**PPP: Public-Priate Partnership**) was Signed in 2016 and in this time Officially launched the Third Generation.

- **Goals :**

- Scope : **Service Oriented Network** (The Vision is Service, Not Network)
- Implementing Network Based on WDM + MPLS/VPLS + IPoDWDM Technology on the Dark-Fiber
- Core Network Speed : 100/400Gbps
- Access (Customer) Speed : 1/10/100GBps
- Coverage : 330 Cites of Iran



**Private Partner**  
Seemorgh System Company  
(SeemSys)



**Ministry of SRT**  
Iranian Research Organization  
for Science and Technology  
(IROST)



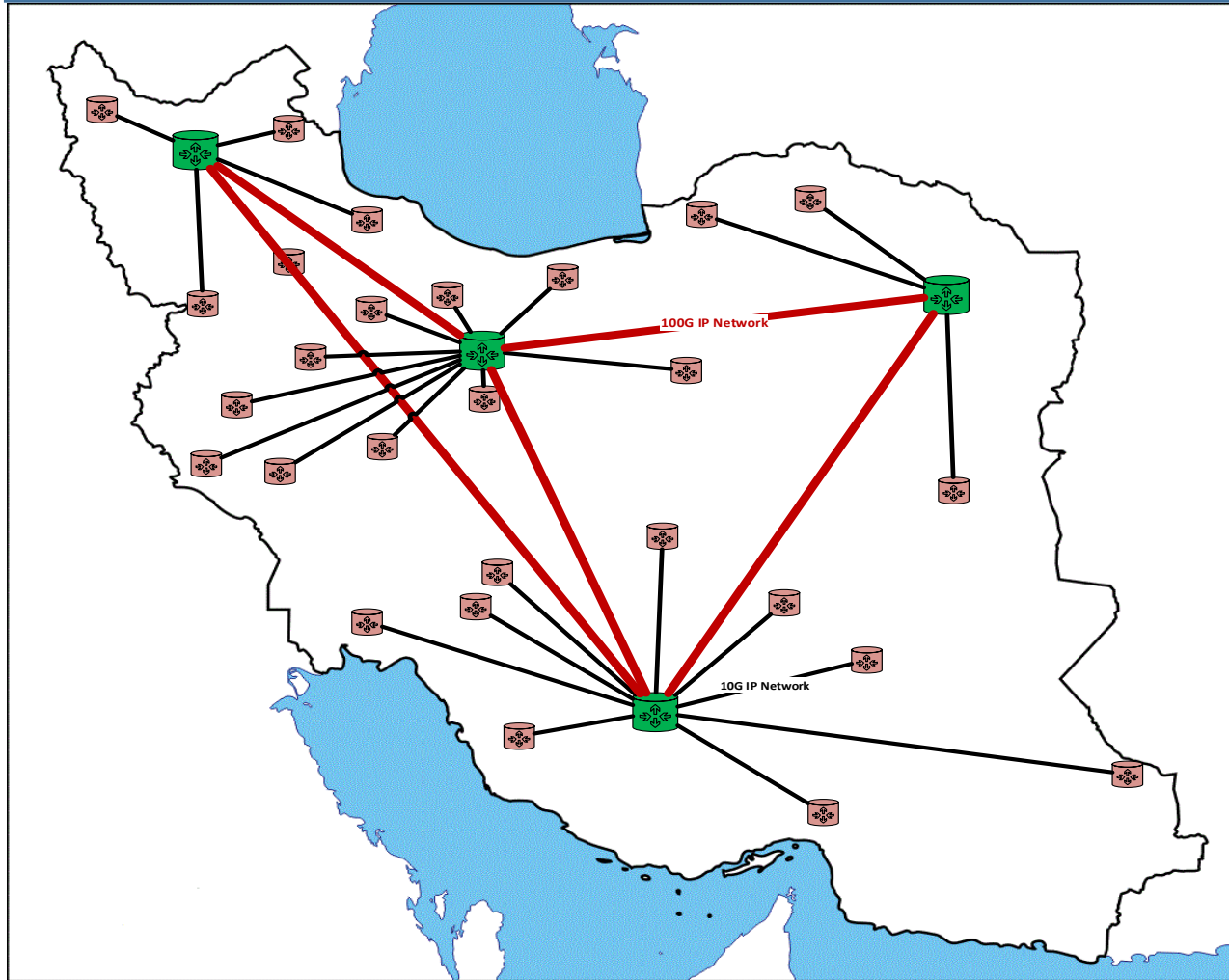
**Iran ICT Ministry**  
Iran Information Technology  
Organization (ITO)



# SHOA Network

- SHOA interconnects more than 30/000 End Customer with a 10G/100G Backbone and 1G/10G access links.
- SHOA also aims to offer professional and innovative IT services with a focus on the research and educational sector.
- SHOA aims to offer QoS based networks with IPv4/IPv6, multicast and introduce advanced services with high QoE

# SHOA Network : Country View

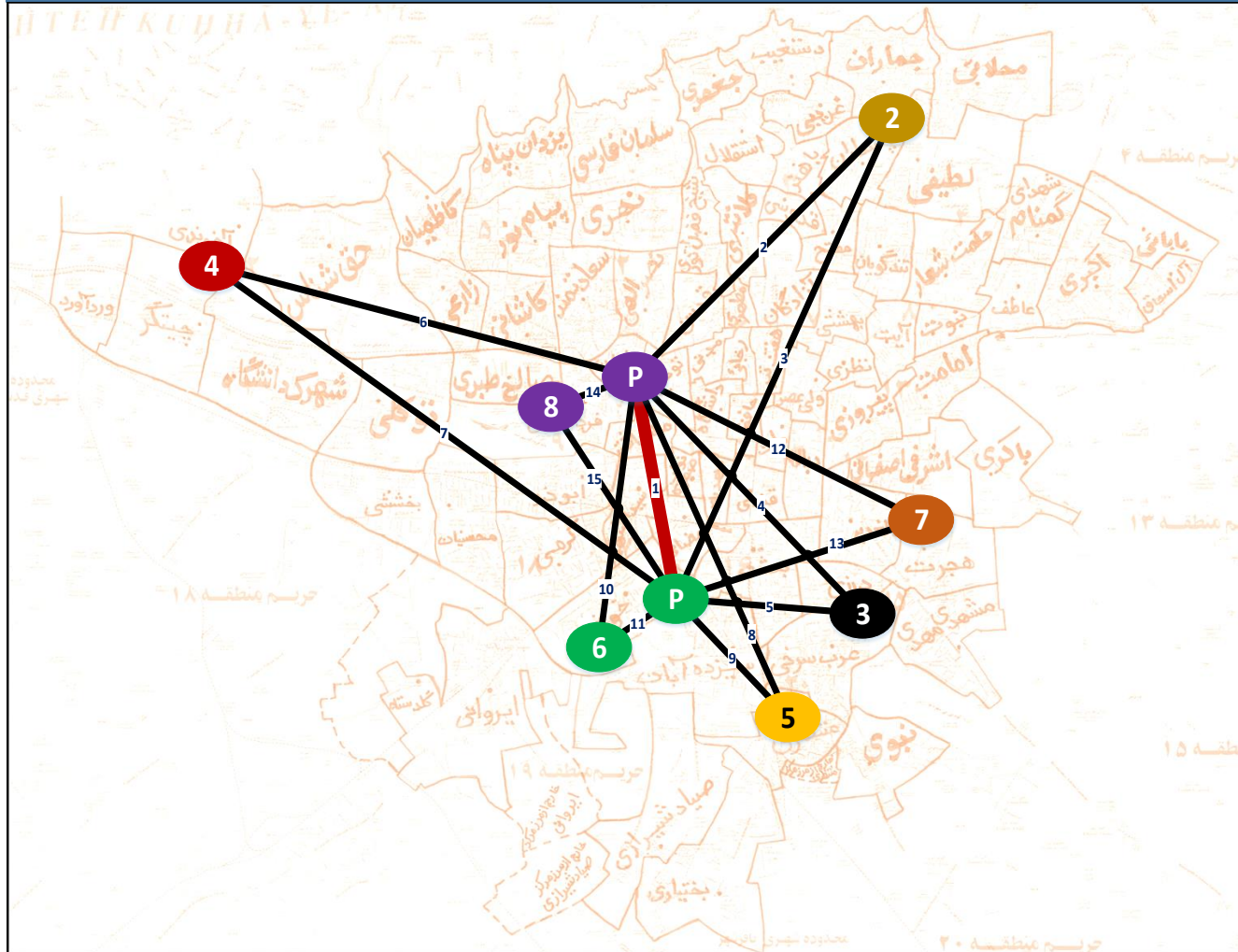


- Based on IPoDWDM Technology
- Core Network Based on 100G
- Distribution Network Based on 10G
- The QOS is Based on MPLS-TP





# SHOA Network : City View



- Based on MPLS/VPLS Technology

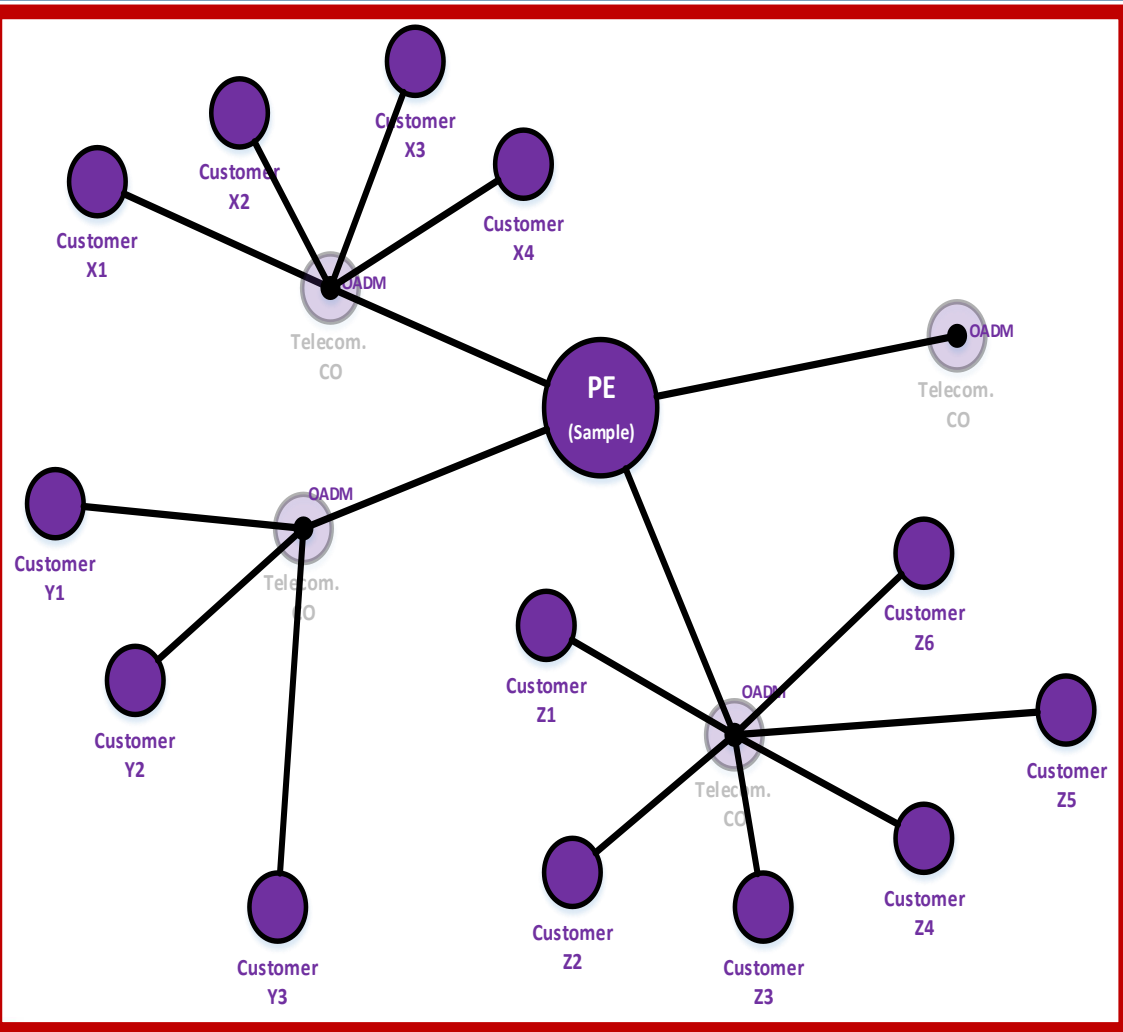
- Core Network Based on 100G

- Distribution Network Based on 10G

- All Connection are Dedicated Dark-Fiber



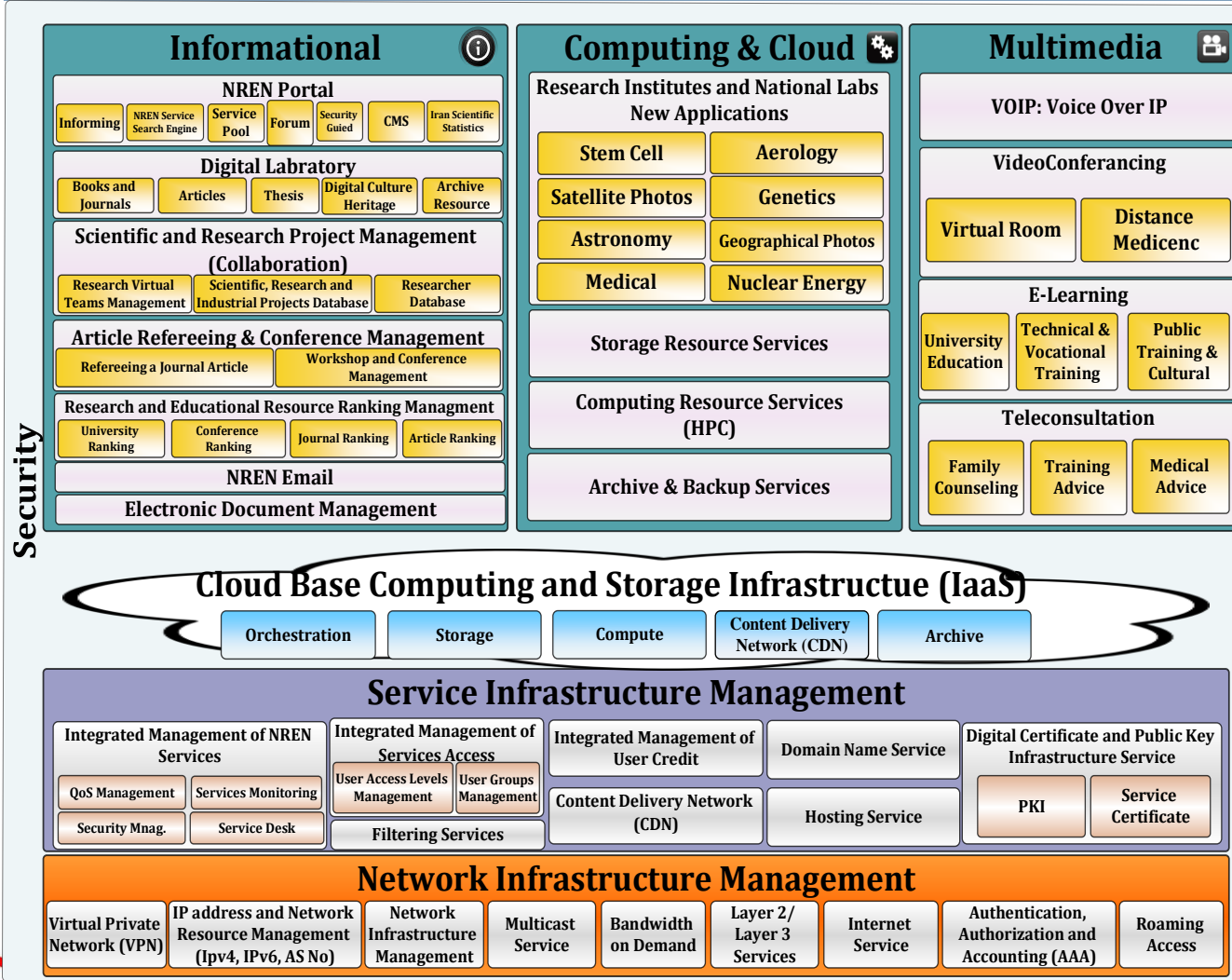
# SHOA Network : Customer View



- Based on WDM Technology
- Network Topology Designed on:
  - Single PE
  - Single P
- All Customers Connection on Dark-Fiber from Customer-Side to PE Point.
- All CE Sites will be transparent on Lambda Technology.



# SHOA Services



- Services divided to Two Part:
  - Operator Services
  - Any Customer to Customer Services
- In the Operator Services, Platform is based on 3 Tier Technology
  - Network Infrastructure made CLOSED FULL MANAGABLE NETWORK
  - Service Infrastructure made FULL OPEN-DESIGNED Service Platform to Any other Service Providers.
  - Cloud & Storage Infrastructure made FULL MOBILITY/ INDEPENDENT OF LOCATION & PLATFORM Services
- In the top of service-stack Any Customer Provide our Services to Other Customers without any Restriction
- B2B , B2C & C2C Method will be Governor all Services.



# SHOA Services

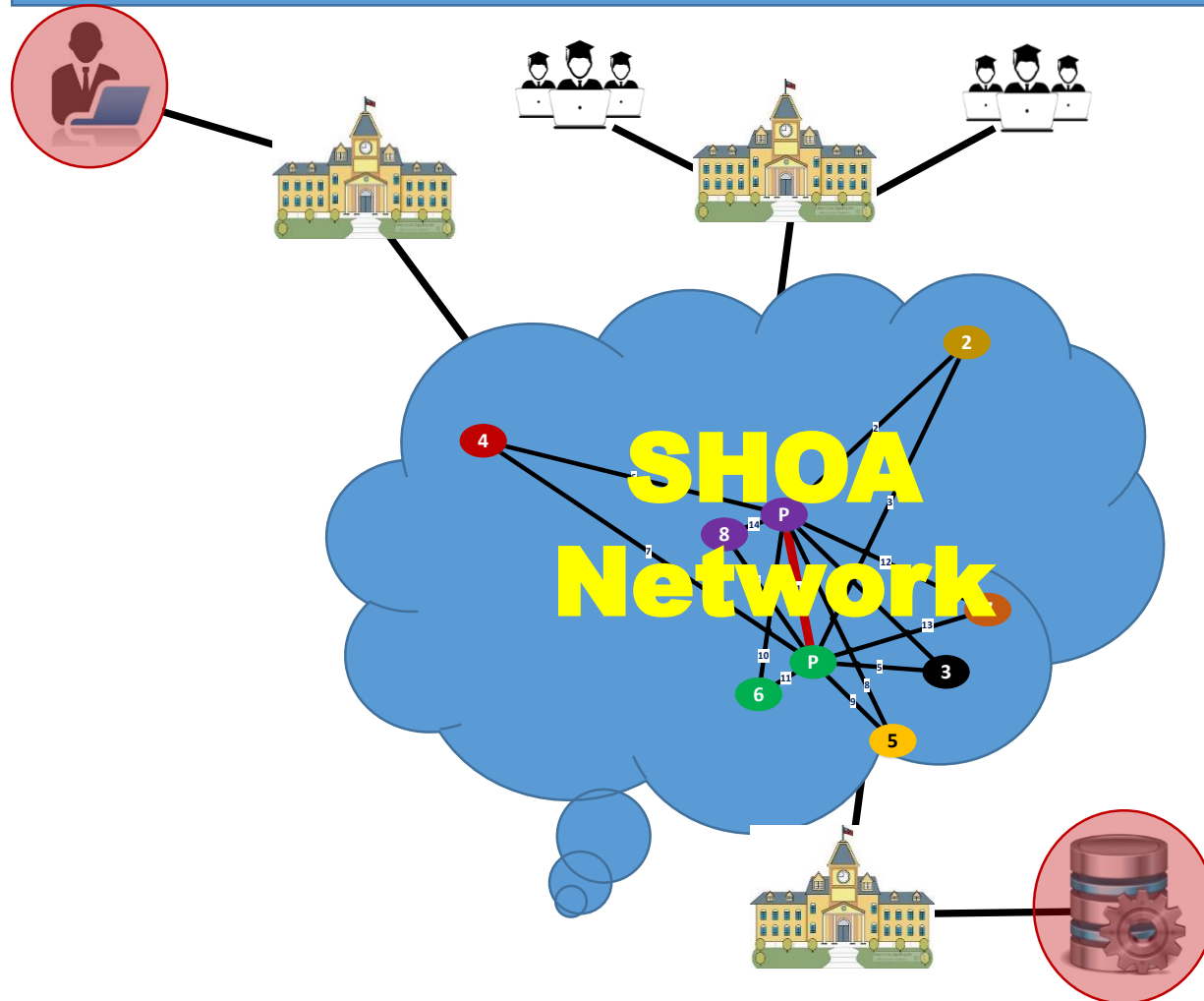
- Based Services includes:
  - Connectivity,
  - Cloud,
  - IT infrastructure,
  - Informational services,
- Manage and Professional services such as:
  - IT Consultancy,
  - Project Management,
  - Licenses, Training and Development

# SHOA Services

- It enables a CLOSED COMMUNITY Network that allows the transfer of General and Special Real-Time Services such as:
  - Web hosting, Co-Locating,
  - Public Internet services,
  - Big Data and Database Services
  - Multimedia Services such as Voice and Video Conferencing,
  - Training Services such as Learning Management System (LMS)
  - Time-critical services such as grid computing interconnect (cloud computing),
  - High Performance Computing (HPC),



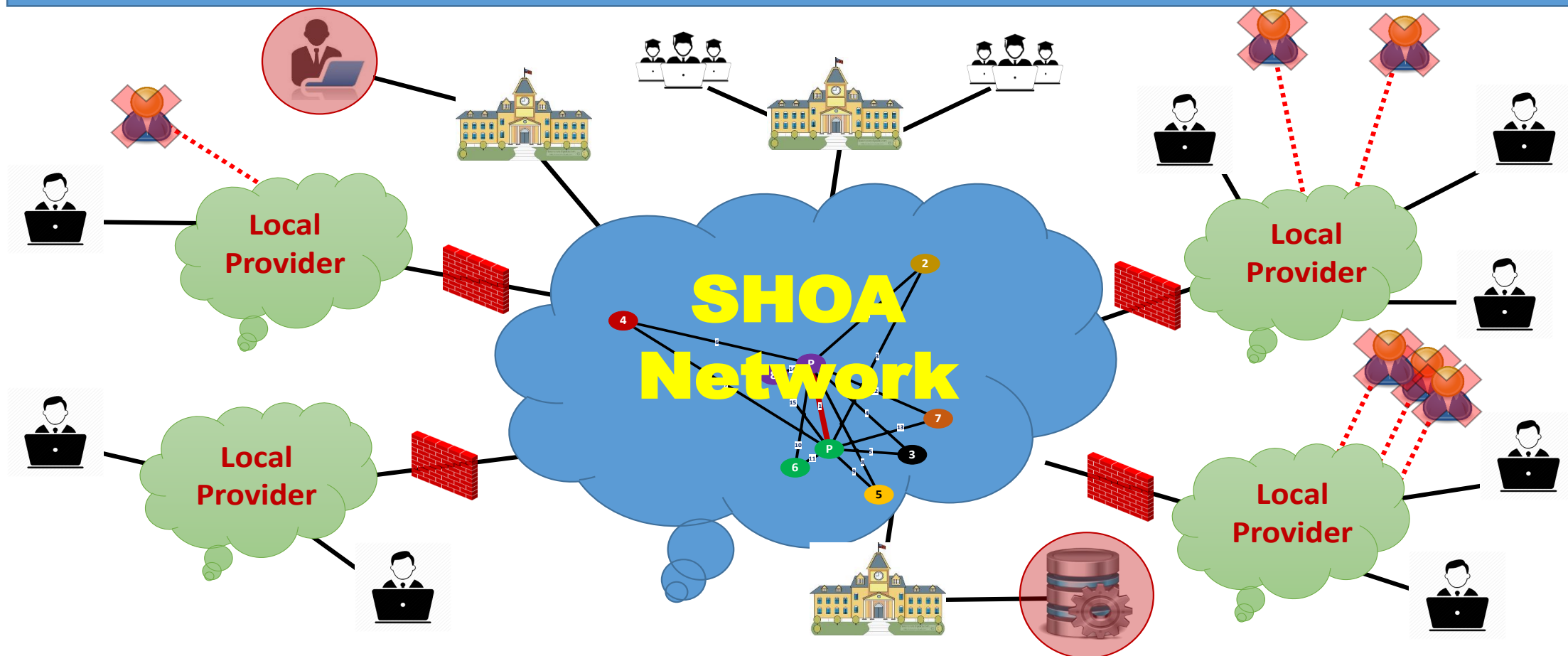
# SHOA Vision - Phase One : CLOSED Network



- Any Teacher Can Provide Any E-Courses in the SHOA.
- Any Student in the Whole of the Network/Country can Deliver and E-Courses.
- Any Customer (University or Research Center) can Provide our **PRIVATE** Data / Database / Big Data to Any other Customer Or Any Student Directly.



# SHOA Vision — Phase Two : INTERCONNECTED Network



**Any Student** Connected on Any other Country Networks Can Deliver SHOA Services on his/her Local Connection.



# SHOA Vision — Phase Three : INTERNATIONAL Network

After **Actual Implementation Time** of **JCPOA** (Joint Comprehensive Plan of Action)



Any Student Connected on Anywhere of IRAN Information National Network Can Deliver **SHOA + Other INTERNATIONAL NRENs**

Services on his/her Local Connection.





# Thanks

