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Looking Back To Move Forward:
A Case for Infrastructure Sharing

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Brief History

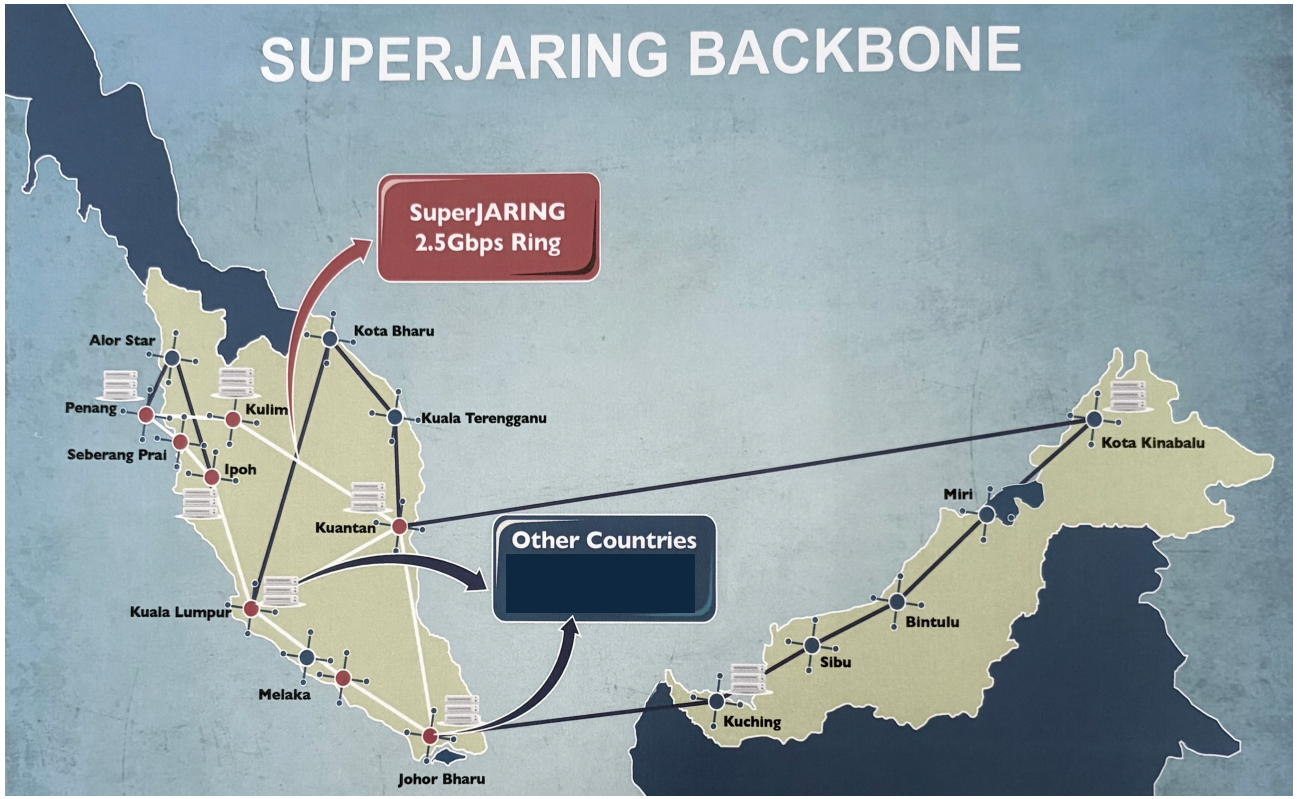
Year	Activities
1983	Stumbled upon Internet technology buried in BSD Unix Codes. Started doing some experiment on a local network
1985-1991	Conducted pilot project, connecting a few organizations – mostly universities. Initially it was very challenging as they were not used to sharing of resources.
1992	Launched the first Internet service in Malaysia (JARING), connecting to USA via a 64kbps satellite link. Local access was on dialup and fixed lines
1994	Upgraded the international link to 1.5Mbps which lasted only for one year before upgraded again to 2Mbps.
1997	Major upgrade to 45Mbps through submarine cable, the 1st in South East Asia
1999	Implemented IP-over-fiber link at 2.5Gbps – the first long distance network (about 800km) in the world then.

Launching of 1.5Mbps International Link

JARING – Challenges Faced

- JARING was the first provider to get an ISP license in the country (1996). About a year later, it was joined by other established telcos. JARING did not have license to build its own infrastructure. It must rely on others for basic connectivity.
- We taught some of them to build Internet infrastructure, who later compete against us
- The competitors (infrastructure owners) knew our basic cost and offered more competitive price to our customers. We lost many big customers.
- Despite these challenges, we continued to improve our quality of services to maintain competitiveness and grew our customer base.

JARING Internet Infrastructure



JARING – More Obstacles

- We finally got our NFP License in early 2000. We focused on wireless broadband as it was too costly to build fixed line infrastructure
- We became the first wireless broadband service provider, using a pre-Wimax technology
- After spending a few tens of million Ringgit in expanding the service, our spectrum was taken away
- That was the end of our wireless broadband service.

End of JARING and a New Beginning

- I retired from JARING in 2010
- The ownership of JARING was later changed
  - JARING ceased its operation in 2015
- I set up my own company in 2011 (MY.NeuTrans), specifically to address challenges faced while running JARING. I obtained NFP and NSP licenses.
- As I do not have any authority to regulate, I was determined to self-regulate.

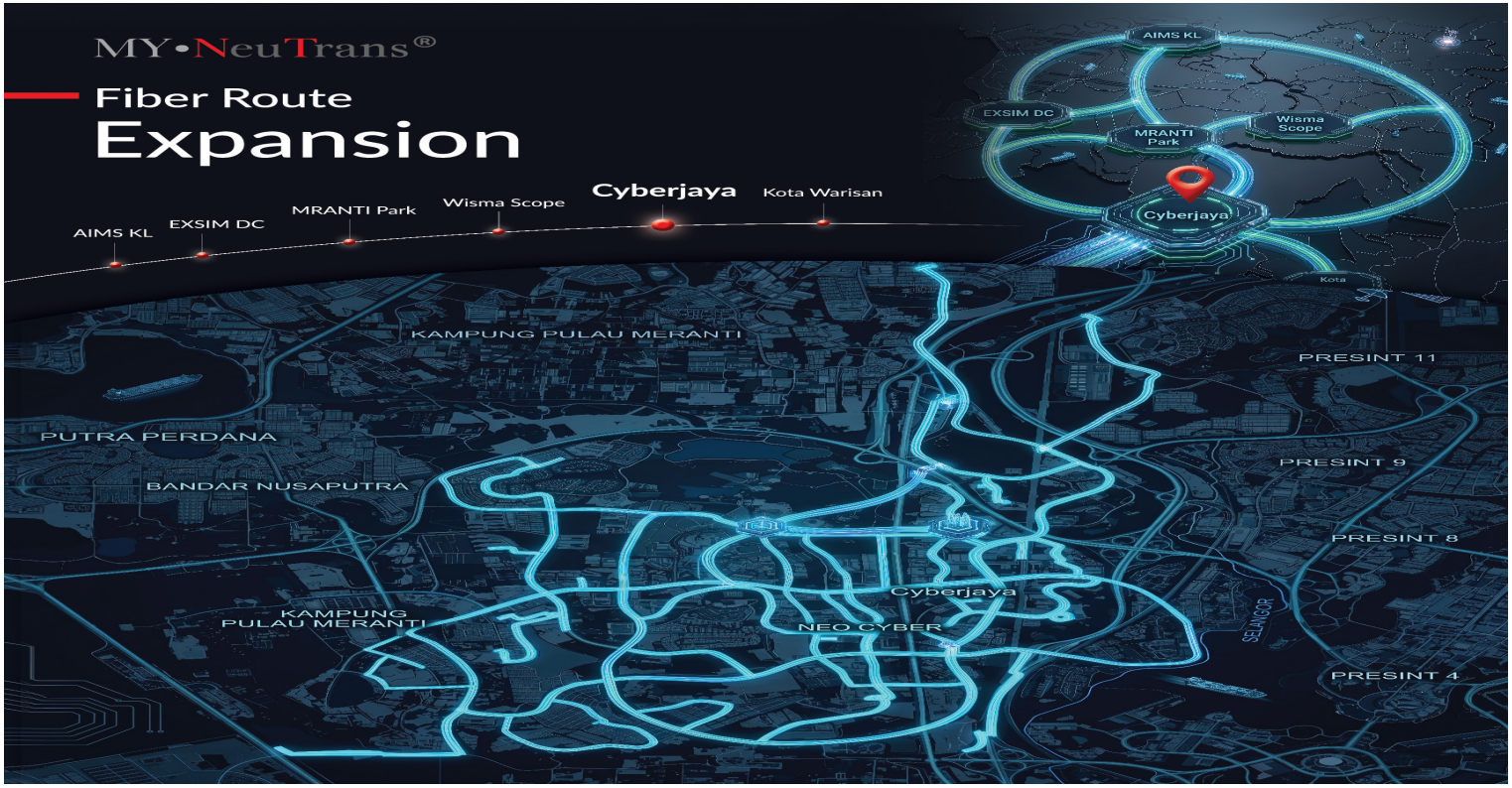
Basic Principles for Infrastructure Sharing

- Infrastructure owner (lessor) should not compete against its own customers (lessees)
- Lessees or potential lessees should not be involved in the management and shareholding of the lessor
- It should allow open access to any service providers, with the same terms and conditions of service
- It should be limited to passive infrastructure only - to enable competition among the lessees in providing value-added service using active equipment of their choice
- It is NOT exclusive

New Beginning – MY.NeuTrans

- We adopt these basic principles of infrastructure sharing and offer our services to service providers
- It was very challenging as it required massive capital
- Eventually, we managed to establish our network in Cyberjaya as the starting point. Now being expanded.
- We focus on dark fiber although we could do other passive infrastructure such as towers, poles and in-building cabling.
  - Dark fibers offer unrestricted bandwidth and future proof operating cost (for service providers)
- Today we have almost 90% of Cyberjaya covered, including all data centers. We have extended to Kota Warisan and KL

MY.NeuTrans Network in Cyberjaya



Case for Common Infrastructure

- Eliminate wasteful, redundant network deployment, lower capital expenditure and reduce prices to consumers
  - If three companies build their own exclusive (for own use) infrastructure on the same road, total cost to the industry would be three times higher. However, the number of customers on the same road remains the same. Hence, the price to customers could be three times higher.
  - Same analogy can be applied to the whole country
- Eliminate sub-standard network construction
- Bridging the Nation's Digital Divide & Expanding Digital Economy
- Speeding 5G (and 6G) rollout – which requires fibers
- Speeding up Regional Data Center connectivity

Discussion with PMX on Common Infra

Cost Efficiency & Resource Pooling

- It is very expensive and time consuming to build – getting the right-of-way, permits, paying the deposits, re-milling and dealing with some unscrupulous third party's contractors who cut our cables
  - We insist on restoring to the original condition (no splicing)
- Deposits can be higher than the actual construction cost, and they are retained by the authority for at least a year
- It is not worth to build your own infrastructure just to have a couple of fibers.

Challenges

- **Red Tape and Wayleave approvals**: Fragmented Regulations, lengthy approval timeframe, costly deposits
- **High CAPEX & Urban Rural Digital Divide:** Resulting in cherry picking of certain areas, rural rollout challenges
- **Shared Access and competition bottlenecks:** Incumbent dominance, property access
- **Limited Skilled Workforce:** Shortage of specialized labour
- **Legacy design and oversized network:** Deployment of legacy infra still persist, embracing of newer method still lacking

Lost Opportunities

The country's past initiatives were well intended. The initiatives could have been strengthened further by taking into consideration the idea of Basic Principles of Infrastructure Sharing outlined earlier.

Initiatives taken by the government has resulted amongst others the creation of the following:

- Corporatization of Jabatan Telekom Malaysia (JTM)
- CMA'98 (Communications and Multimedia Act 1998)
- NFCP (National Fiberization and Connectivity Plan)
- School Point of Presence (POP) projects
- DNB (Digital National Berhad)

Conclusion

- Right business model is critical for infrastructure sharing
- It should be limited to passive infrastructure to avoid restricting competition
- The provider of the shared infrastructure need not be a monopoly or exclusive
- If there is any regulation, it should facilitate cost reduction and not controlling the price.
  - Prices should be managed through open and fair competition.