# Timor-Leste Research and Education Network (TLREN)

An Overview

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# Outline

1. Background

2. Challenges

3. The TLREN Initiative

4. Current Works

The National Communications Authority (the ANC) of Timor-Leste has led the effort in developing a National Research and Education Network in Timor-Leste (TLREN) since 2014.

This talk presents an overview of the vision and the works in developing the TLREN.

# Background

In 2011, our government adopted a Strategic Development Plan known as the "SDP 2011-2030" to guide our national development as to transition our nation from a low income economy to **upper middle income country** with a healthy, well educated and safe population by 2030.

To do that SDP 2011-2030 has set key strategies and ambitious goals across many sectors for our social and economic development.

# Telecommunications

**TARGETS**

**By 2015:**

- There will be reliable and affordable mobile phone coverage provided to all Timorese people

- There will be reliable, affordable and high speed internet access available in all district capitals and surrounding areas

- All schools, health posts and health clinics will be connected to the internet

- The regulatory framework will be in place to manage a competitive telecommunications market

**By 2020:**

- All Timor-Leste will have access to reliable, affordable and high speed internet

- All students and health professionals will have portable internet access devices

- Timor-Leste will be part of the technology enabled world

# Some Progress

| Challenges in 2011 | NTP 2011 | Results |
|---|---|---|
| Market of a single operator with concessional rights | Transition to a competitive market | A vibrant market with 3 actively competing operators |
| Inadequate service coverage | Extend service coverage through private investments | • Service coverage > 96% population (2015)<br>• Internet bandwidth has increased from ~100Mbps (2012) to ~3,600Mbps (2015) |
| Costs are high and low penetration rate | Reduce prices through market efficiencies to increase penetration | • Service charge sdrop significantly<br>• Penetration rate > 58% |

# ITU 2016 IDI Index

Table 1.2: IDI rankings and values, 2016 and 2015

| Economy | Rank 2016 | IDI 2016 | Rank 2015 | IDI 2015 |
|---|---|---|---|---|
| Korea (Rep.) | 1 | 8.84 | 1 | 8.78 |
| Iceland | 2 | 8.83 | 3 | 8.66 |
| Denmark | 3 | 8.74 | 2 | 8.77 |
| Switzerland | 4 | 8.68 | 5 | 8.50 |
| United Kingdom | 5 | 8.57 | 4 | 8.54 |
| Hong Kong, China | 6 | 8.46 | 7 | 8.40 |
| Sweden | 7 | 8.45 | 6 | 8.47 |
| Netherlands | 8 | 8.43 | 8 | 8.36 |
| Norway | 9 | 8.42 | 9 | 8.35 |
| | | | | |
| Greece | 36 | 7.13 | 40 | 6.86 |
| Italy | 37 | 7.11 | 36 | 6.89 |
| United Arab Emirates | 38 | 7.11 | 35 | 6.96 |
| Lithuania | 39 | 7.10 | 34 | 7.00 |
| Latvia | 40 | 7.08 | 37 | 6.88 |
| Croatia | 41 | 7.04 | 41 | 6.83 |
| Slovakia | 42 | 6.96 | 44 | 6.69 |
| Russian Federation | 43 | 6.95 | 42 | 6.79 |
| Portugal | 44 | 6.94 | 45 | 6.64 |

| Economy | Rank 2016 | IDI 2016 | Rank 2015 | IDI 2015 |
|---|---|---|---|---|
| Iran (I.R.) | 89 | 4.99 | 90 | 4.66 |
| Mongolia | 90 | 4.95 | 93 | 4.54 |
| Albania | 91 | 4.92 | 92 | 4.62 |
| Mexico | 92 | 4.87 | 96 | 4.45 |
| Panama | 93 | 4.87 | 91 | 4.63 |
| St. Lucia | 94 | 4.85 | 87 | 4.68 |
| Tunisia | 95 | 4.83 | 95 | 4.49 |
| Morocco | 96 | 4.60 | 98 | 4.26 |
| Cape Verde | 97 | 4.60 | 99 | 4.23 |
| | | | | |
| Gabon | 124 | 3.12 | 126 | 2.81 |
| Cambodia | 125 | 3.12 | 127 | 2.78 |
| Honduras | 126 | 3.09 | 124 | 3.00 |
| Vanuatu | 127 | 3.08 | 131 | 2.73 |
| Timor-Leste | 128 | 3.05 | 125 | 2.92 |
| Kenya | 129 | 2.99 | 129 | 2.78 |
| Samoa | 130 | 2.95 | 128 | 2.78 |
| Nicaragua | 131 | 2.88 | 130 | 2.74 |
| Côte d'Ivoire | 132 | 2.86 | 139 | 2.43 |

Source: ITU Measuring Information Society Dataset

# and a confirmation from the Bank

| Country Profile | | | | |
|---|---|---|---|---|
| | 1990 | 2000 | 2010 | 2016 |
| **States and markets** | | | | |
| Time required to start a business (days) | .. | .. | 110 | 9 |
| Domestic credit provided by financial sector (% of GDP) | .. | -8.7 | -23.5 | -8.8 |
| Tax revenue (% of GDP) | .. | .. | 103.0 | 39.9 |
| Military expenditure (% of GDP) | .. | .. | 2.8 | 2.6 |
| Mobile cellular subscriptions (per 100 people) | 0.0 | 2.1 | 43.8 | 125.0 |
| Individuals using the Internet (% of population) | 0.0 | 0.0 | 3.0 | 25.2 |
| High-technology exports (% of manufactured exports) | .. | .. | 10 | 10 |
| Overall level of statistical capacity (scale 0 - 100) | .. | .. | 56 | 67 |

Source: World Development Indicators database

# But to connect all schools* …. to the Internet

There are significant challenges remain in all pillars of development:

policy and regulation

infrastructure and investment

and human capacity

\* It also applies in a more general sense

# the TLREN Initiative

the ANC then concluded that it would need to assume a more pro-active role in developing the sector:

➢ Multi-stakeholder cooperation;
➢ Technical expertise;
➢ Advice on policies;
➢ Capacity building;

… all those lead to the TLREN initiative!

# TLREN: the Network Plan for Capital Dili
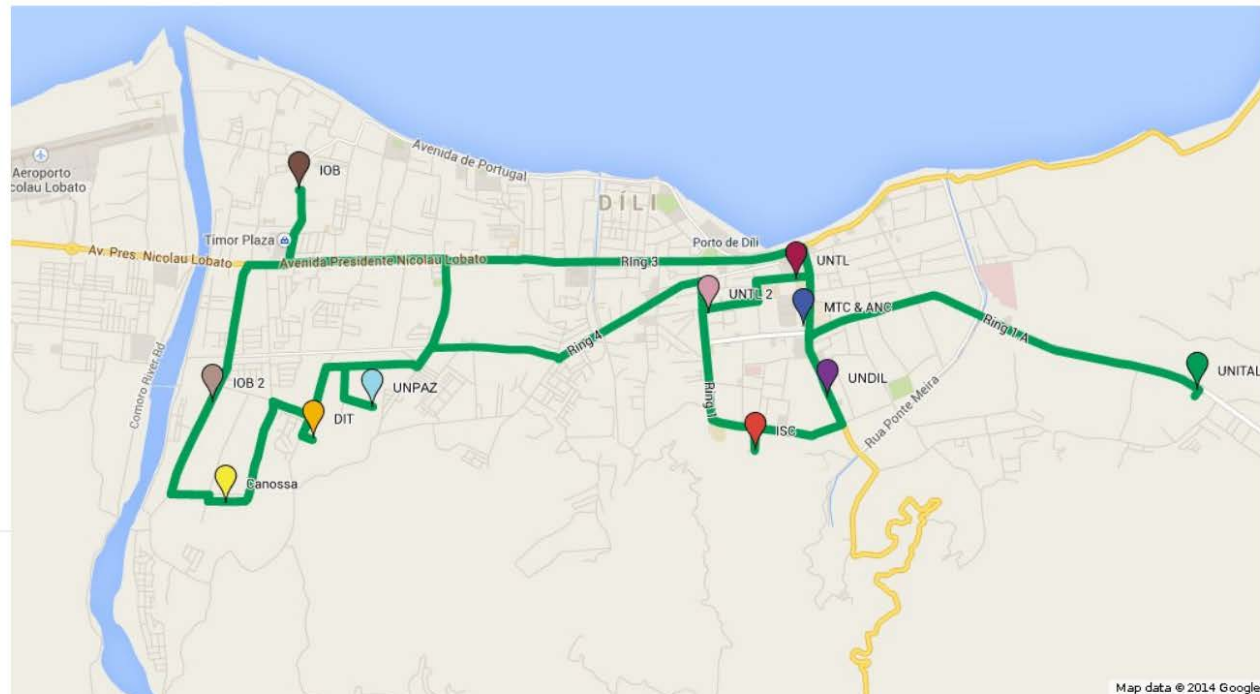


Participants: UNTL, DIT, UNPAZ, UNDIL, UNITAL, IOB, IS Cristal and Canosa

# TLREN: the Nationwide Network Plan
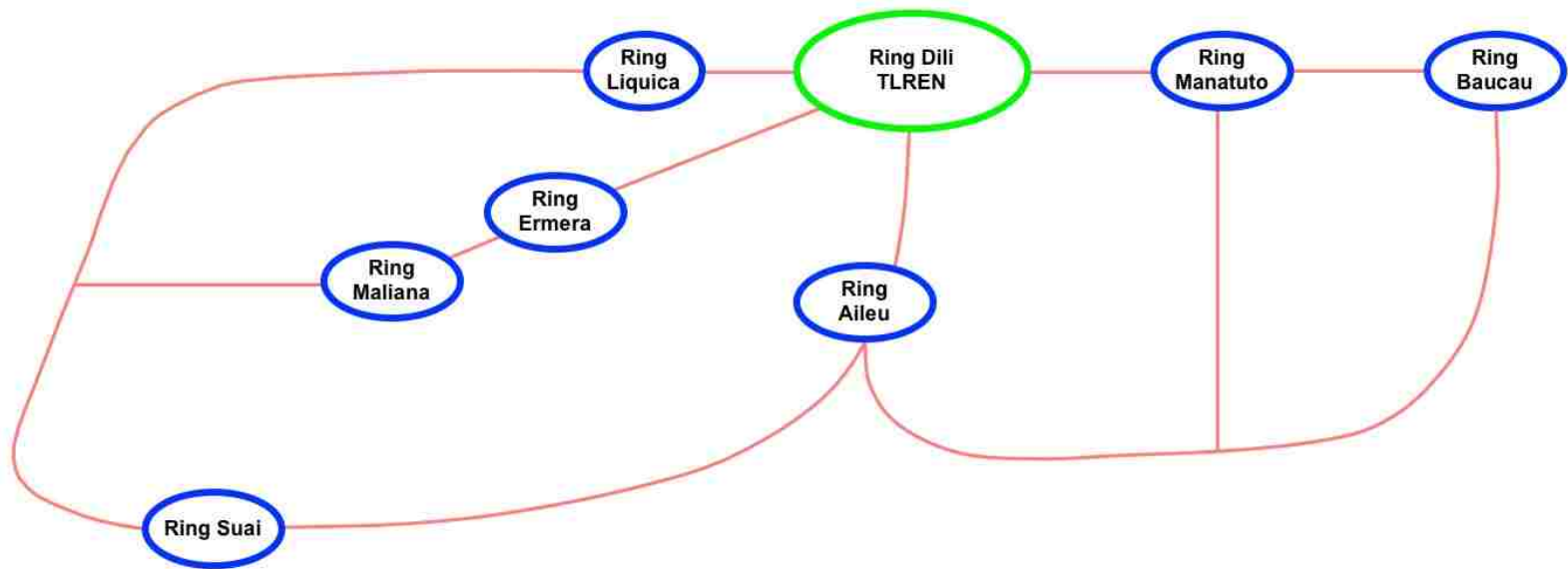


Participants: UNTL, DIT, UNPAZ, UNDIL, UNITAL, IOB, IS Cristal and Canosa

# TLREN: Q/A

➤ Initiator (2014): the ANC and the then Ministry of Transport and Communications

➤ Lead: the ANC (current), the TLREN Association (future)

➤ O&M: ANC's Telecom Universal Access Fund

➤ Members: ANC, UNTL, DIT, UNPAZ, UNDIL, UNITAL, IOB, Instituto Cristal, and Canosa ++

➤ Intended Bandwidth: 10Gbps (International), 100Gbps (national)
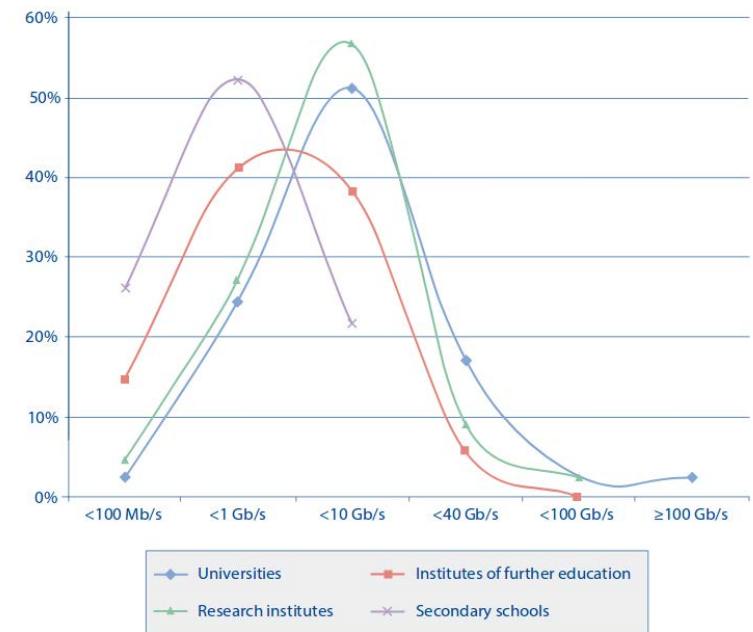
# High speed broadband Internet to our Academia



Average traffic in GB/y per EU researcher versus per EU and world citizen (logarithmic scale)
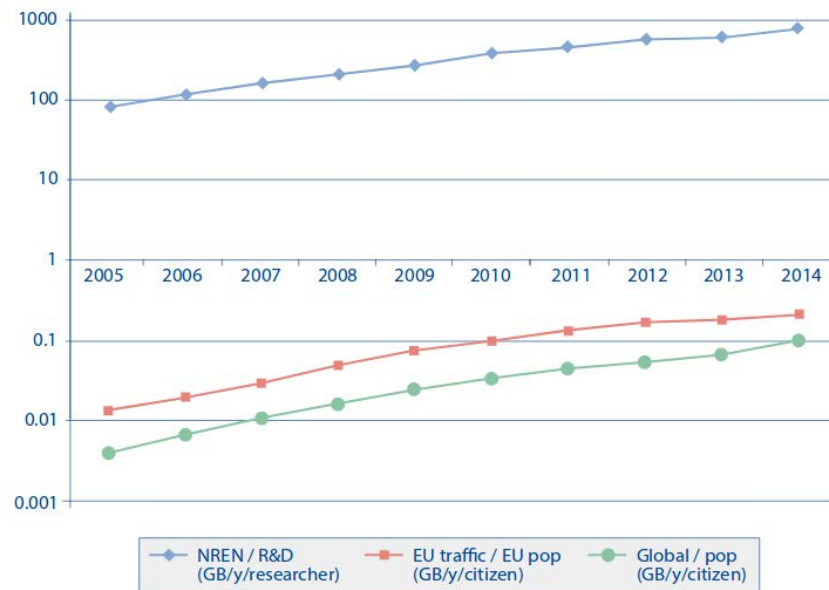
Graph 2.3.1 – Typical bandwidth, GÉANT partner countries

Source: The Geant Compendium

# TLREN: Vision

TLREN envisions a network which allows a student to have a broadband access to the Internet and content hosted in Timor-Leste from any campuses across the country;

# Opportunities

TLREN is a network for serving the Academia and other relevant institutions. As a network, it will function as a platform upon which many services (and content s) can be provided;

The TLREN Committee derived from the TLREN membership will select the types of service and contents as well as any research programs and initiatives to run on the TLREN;

International co-operation will be key to TLREN success;

# Thank You