

BARBADOS' JOURNEY



EGOVERNANCE
&
**THE INTERNET EXCHANGE
POINT**

Barbados' Journey



- **Keep it Simple!**
- **Keep it Local!**
- **Protect who's Data Traffic!**
- **How's my Data Security?**
- **Why an Internet Exchange Point?**
- **Integrate the IXP & eGovernance?**

An Internet Exchange Point (IXP):



- *Keeps* local Internet traffic local;
- Should realize less processing time;
- *Reduce* costs associated with data traffic exchange between *Internet Service Providers (ISPs)*.

http://www.internetsociety.org/what-we-do/issues/internet-exchange-points-ixps?gclid=CN_Q2eWg9rgCFXRp7AodYxsAXw

An Internet Exchange Point (IXP):

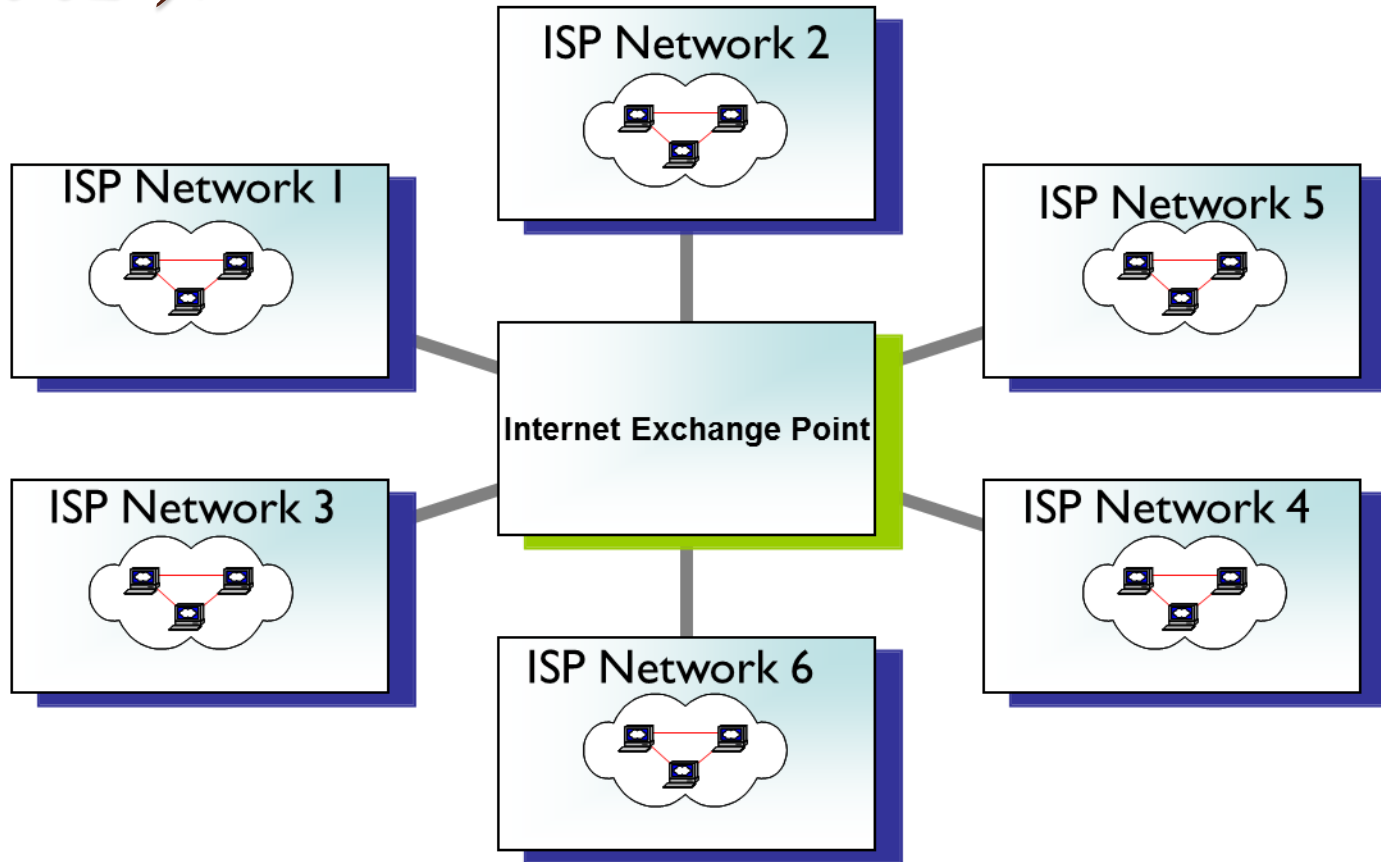


Illustration # : Data Centred Architecture – Barbados' IXP implementation model

Illustration #1: Data Centered Architecture – Barbados' IXP implementation model

eGovernment



Electronic Government defines the public sector's utilization of *Information & Communication Technology (ICT)*, to provide *Services & Information* to its many clients.

eGovernance



Electronic Governance is the process associated with employing *Change Management & Business Process Reengineering* for improved quality, efficiency & effectiveness of *24x7 ICT* utilization.

- Service at a place and format convenient to the *Customer*;
- Enable *public participation* in Government's policies & decision making processes.

Integrate the IXP & eGovernance



An *IXP & eGovernance* are intertwined, allowing *Internet Service Providers (ISPs)* to improve on their *Quality of Service (QoS)* delivery to customers, invariably facilitating Government's many requirements.

Integrate the IXP & eGovernance

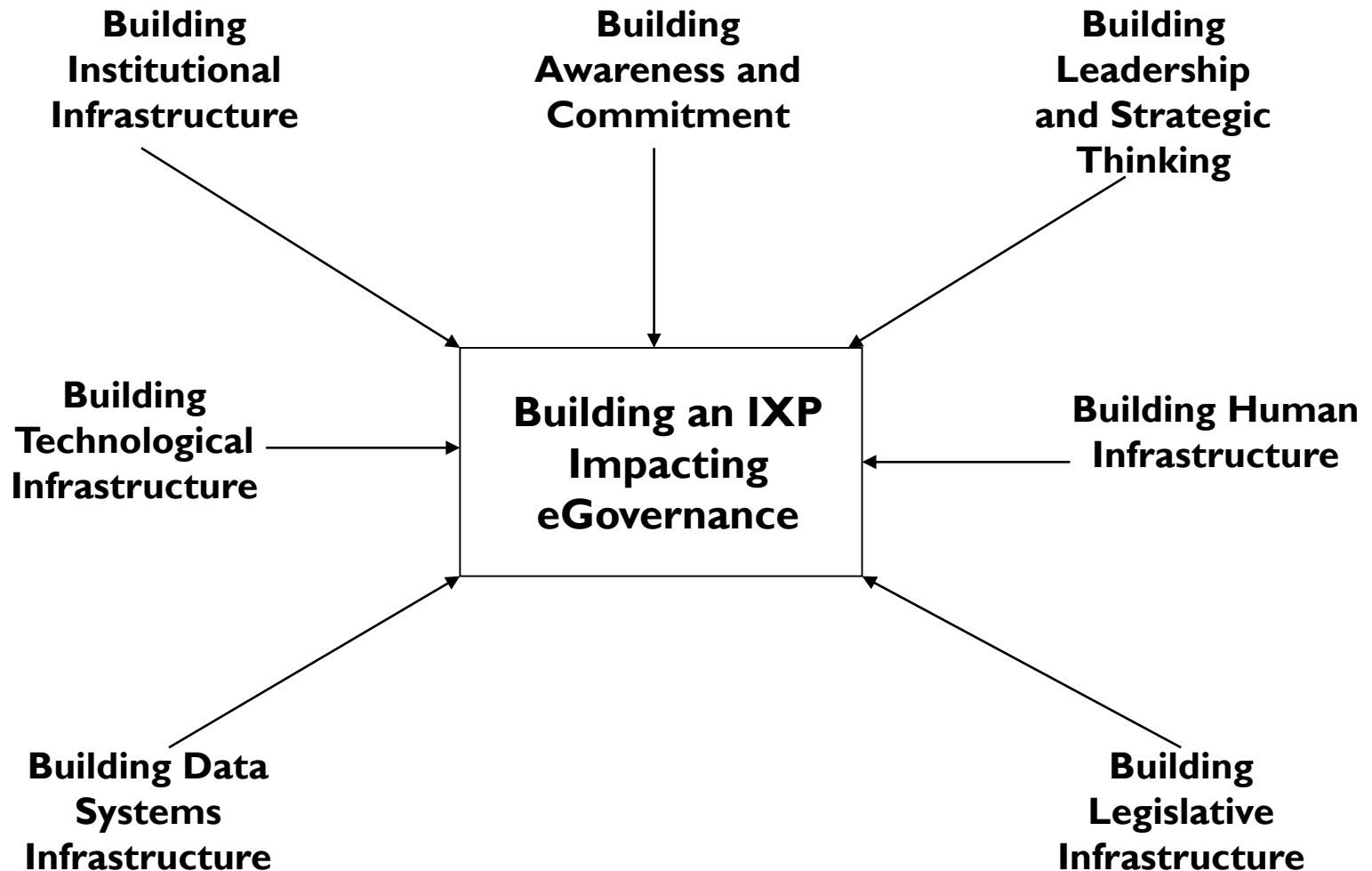


Illustration #2: An IXP impacting eGovernance development

Integrate the IXP & eGovernance



*e*Governance is impacted by the use of electronic tools such as:

- *e*Mail / *M*essaging – Electronic Communication;
- *IP* Phone Services – Device driven service;
- *V*ideo Conferencing – Convening meetings with participants at different locations;
- *S*ecure *C*loud based solutions – Electronic Procurements, Human Resource Management Processing, i.e. Leave, salaries, et al;
- *E*lectronic *f*ile *S*haring – Instant file synchronization;
- *S*teaming *V*ideo & *M*ultimedia- Ready throughput.

Barbados' *Internet eXchange Point*



A *Public Private Partnership* of
Barbadian Stakeholders are currently
working to implement *Barbados' IXP*.

The *aim* is to realize optimal *Internet*
and related *QoS* to consumers, both
locally & internationally.

Barbados' *Internet eXchange Point*



Barbadian Stakeholders comprise:

- *Barbados' Government:*
 - Telecommunications Unit;
 - Data Processing Department;
 - Fair Trading Commission.

Barbados' *Internet eXchange Point*



- *I*nternet *S*ervice *P*roviders:
 - LIME;
 - Digicel;
 - Ace Communications;
 - WiNet;
 - SunBeach;
 - Karib Cable;
 - TeleBarbados.

Barbados' *Internet eXchange Point*



- *Not for Profit Organizations:*
 - *Barbados ICT Professional Association (BIPA);*
 - *Information System Security Association (ISSA) Barbados' chapter; et al.*

Barbados' Internet eXchange Point



An Overview - Switch Topology

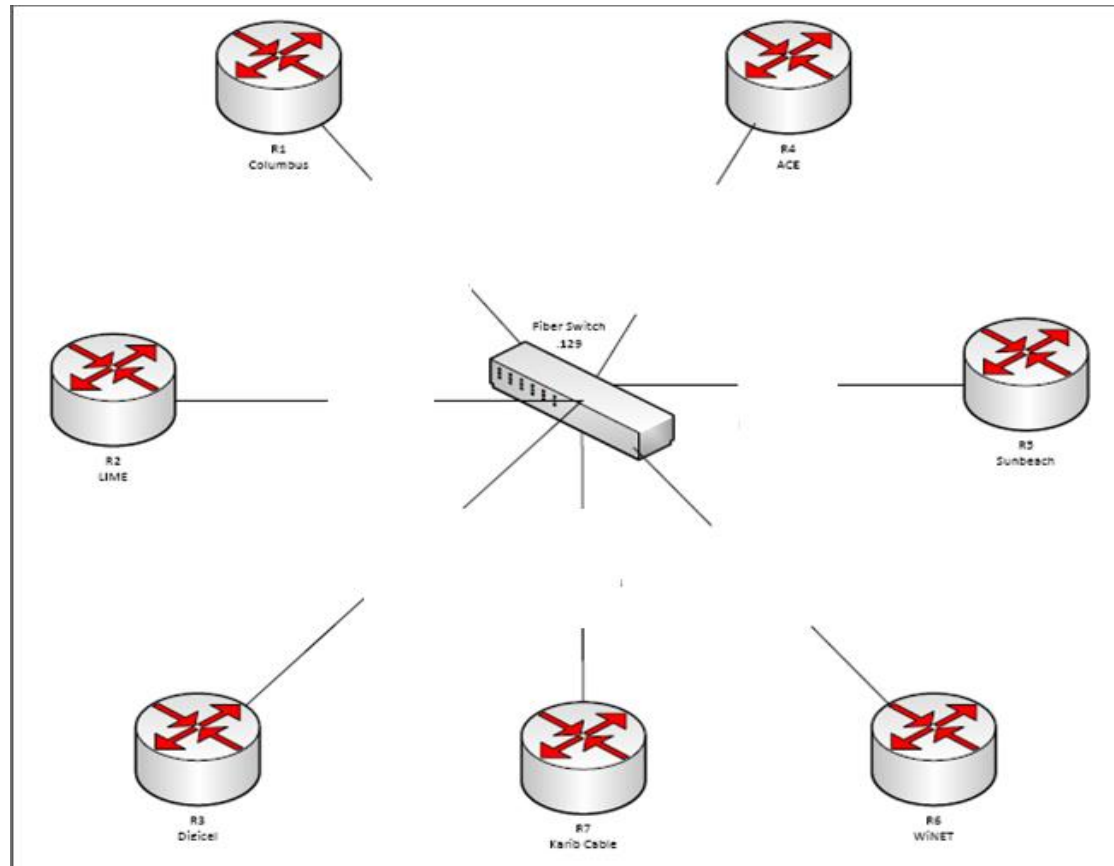


Illustration #3: Topology of Barbados' IXP

Barbados' IXP & eGovernance



General IXP & eGovernance incorporates:

Barbados' Stakeholders, ISPs, Institutions, et al;

&

*Barbados' major eGovernance implementation
arm, the Office of Public Sector Reform.*

The potential is ultimately, for local, regional and
international optimization of *Internet QoS.*

Barbados' *Internet eXchange Point*



The *T*elecommunications *U*nit, having spearheaded the project, manages the overall process.

The *M*emorandum of *U*nderstanding has been discussed in open forum among stakeholders, continuing to be ratified by *B*arbados' *S*olicitor *G*eneral.

Work is ongoing on the related *P*eering *A*greement.

Barbados' *Internet eXchange Point*



The *D*ata *P*rocessing *D*epartment provisions:

- *N*eutral *H*ousing of the *I*X*P*, in consultation with *I*S*P*s;
- *F*ibre runs;
- Erection of a *m*onopole for wireless connectivity;
- Ensuring adequate *e*lectrical facilitation;
- Related *h*ardware requirements.

*I*S*P*s continue to collaborate in provisioning connectivity whether wireless or via fibre.

The IXP impacting eGovernance



Additional factors impacting electronic data:

- Content- Content M'gmt. , Sys.Architecture;
- Connectivity- Optical vs. Satelite based;
- Cyber Laws- Privacy issues, Right to Info.;
- Competencies- Change M'gmt. , Process Re' g.;
- Citizen Interface- Internet based applications;
- Capital- PPP, Online streams of Revenue.

Why an IXP



World Bank reports published in 2012 lists the following statistics for:	2010	2008
Fixed broadband Internet subscribers (per 100 people) in B'dos:	20.56	18.08
Fixed broadband Internet subscribers in Barbados:	56,190	49,216
ICT service exports (% of service exports; BoP) in Barbados:	2.53	0.99
Internet users (per 100 people) in Barbados:	70.2	66.55
Internet users in Barbados:	191,878	180,999

Table #1: World Bank Report Published 2012

<http://www.tradingeconomics.com/barbados/internet-users-wb-data.html>

Sourced: February 19, 2013

Why an IXP

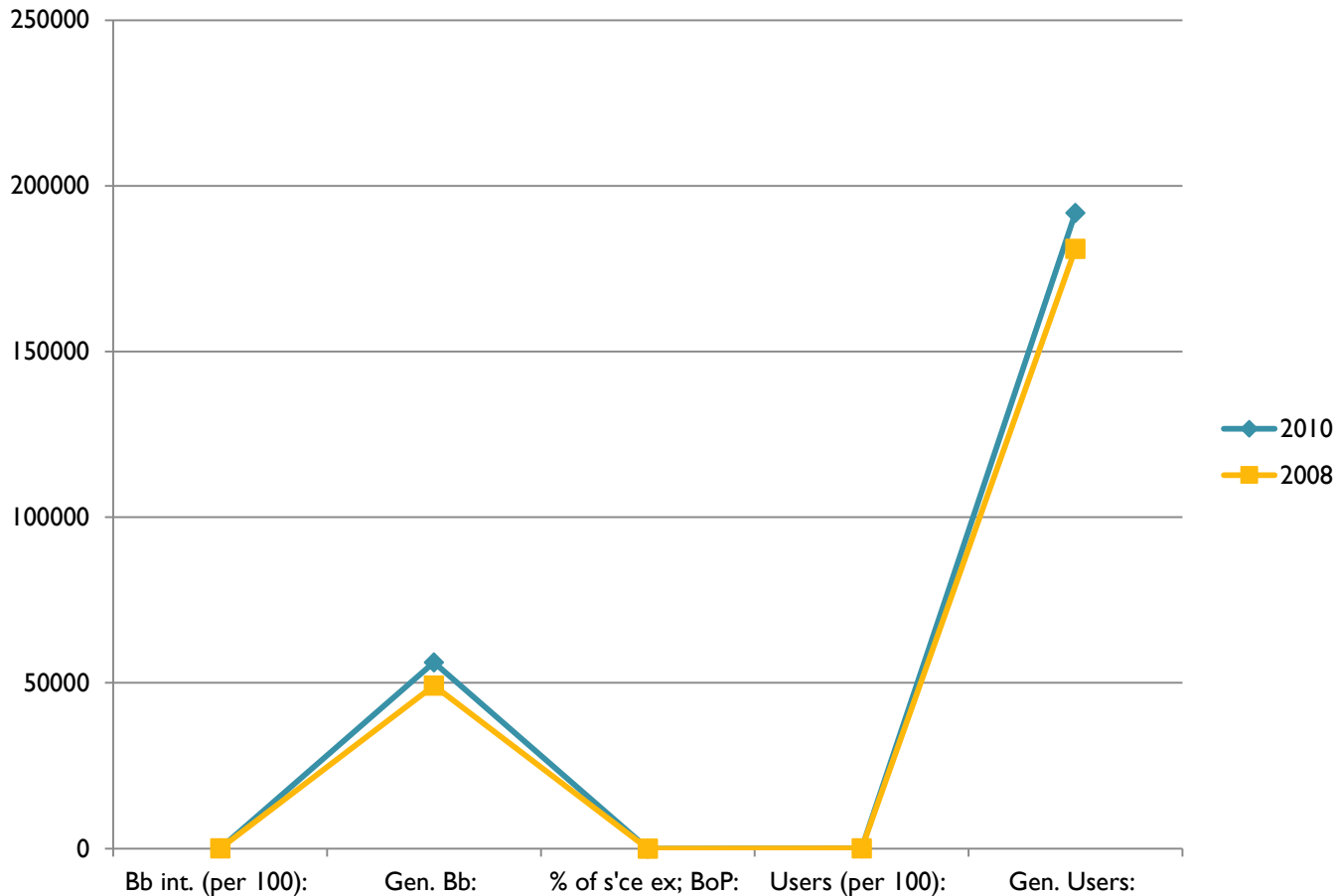


Table #1 Graphically: World Bank Report Published 2012

<http://www.tradingeconomics.com/barbados/internet-users-wb-data.html>

Sourced: February 19, 2013



Why an IXP?

- Speedier data traffic transfers;
- *Less* congestion problems from international networks, i.e. traversing third party networks;
- *Host* government content locally;
- Cheaper operational costs for businesses using local traffic access;
- *Encourage Content & Domain Managers* to host websites locally realizing economic growth.

How's my Data Security?



- Security Considerations of the *IXP* incorporates *ethical hacking* and the like.
- One *ISP* is expected to respect another *ISP's* traffic;
- Each *ISP* is expected to have some *Contingency plan*, guarding against malicious intrusions.
- *Improved data privacy*, i.e., local data is less likely to be intercepted if on a local network and not traversing a third party network;

How's my Data Security?



Barbados' government, through the Telecommunications *Unit*, is in the process of establishing a Computer *Incidents Response Team (CIRT)*, the success of which will require continued cooperation among both *Public & Private* sector *ICT* professionals.



Is it safe enough?

- Continued enhancement of professional knowledge in the field, i.e., ongoing training in requisite Security through continued exposure to forums such as *CaribNOG*;
- *A* competent cadre of expertise exists here in *Barbados*, i.e. UWI graduates. et al;
- *ISPs* acknowledgement of requisite proposed *IXP's* peering agreement is impetrative;

Protect who's Data Traffic?



Irrespective of whether data originates from a local or international source, it should be protected. Data traffic within Barbados' telecommunications environment is therefore integral in the spectrum of data security provisioning.

Protect who's Data Traffic?



- eGovernance processes envisions an increase in government data traversing cyberspace. The *IXP's* implementations should realize such data being traversed via local networks;
- Likewise, related private/ public data resulting from increased utilization of online solutions, eg. *eZpay*, a government online payment solution; *Carifs*, financial processing in the private sector, et al.

Keep it LOCAL!



- *Local data traffic*, whether public or private is identified as safer, since third-party network involvement is eliminated;
- *ISPs* are expected to *collaborate* with a view to facilitate *local data traffic collectively*, leveraging network efficiency;
- *Encourage* the local establishment of larger networks such as *google*, et al, to Barbados for greater economic returns.
- *Electrical interference* ie. *latency*, et al, is reduced, realizing *improved throughput*.



Keep it SIMPLE!

Barbados' IXP, once implemented, aims to provision consistent *QoS* to users, with *ISPs* collaborating & cooperating to maintain local *data traffic* integrating the *Barbadian* & *international business community*.

Conclusion



Barbados' IXP implementation has the ability to leverage electronic processing regionally, to attract and sustain international economic interests.

Heightened eGovernance status amidst electronic *data traffic* constraints is encouraged through using more rigorous *Change Management* and *Process Reengineering* techniques.

Assigning high level champions should also assist this process.

...cont'd.

Conclusion



...cont'd.

Barbados boasts a literate ICT work-force, with competencies, requisite skills and an aptitude for applying lessons learnt.

Experience which might be lacking somewhat, can be achieved through *p*ublic Sector training, continued *P*rivate *P*ublic *P*artnerships and *i*nternational consultation.

Emphasizing knowledge transfers from experienced consultants, needs to be a major component in requisite partnership arrangements.