Ghana Internet Conference 2020

By
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Ladies and gentlemen, it's a pleasure for me to be with you again at the Ghana Internet conference 2020. It is good to see we are maintaining the spirit of the Internet of discussions and coordination. It is important to have an annual forum for Internet and I thank organizers of the conference for this. I will not miss a moment in defense of the Internet and I will continue to participate

The theme "governance of Ghana's cyber space: our security and privacy", is expressive and suggests we have a

maturing Internet ecosystem and community. This is because we are attempting to address real issues resulting from the adoption of the internet and computing we refer to as cyberspace

We happen to be addressing this topic during a pandemic which has done what Internet pioneers could not do which was to convince society that the local Internet can be dependable enough for widespread adoption.

Now, we understand one internet..hello

The internet is a powerful means of building our society.

I note that the stability of cyberspace itself and what environments are suitable for cyberspace are missing in the theme and trust that your deliberations at the conference will include resilience, robustness and stability. Too often we take for granted the technical operation behind and we should not

Thanks to coronavirus, we now all accept that cyberspace is necessary to life and perhaps a strategic tool for economic and social advancement. The internet demonstrated during the different phases of the pandemic that it can scale and be stable, robust and dependable

Ghana's cyberspace development.

Our society does not listen very well to technology and often stalls local initiatives. Policy authority is often too quick to say no you can't do this, stop doing this, and very authoritative in positions while in fact many people lack knowledge on subject matter

We sometimes, forget that what we call technology is a scientific subject though has social and economic implications with mass adoption. Besides Technology is not known to be a respecter of age, gender, ideology, faith, ethnicity, family or status yet not all have the acumen whether on technology proper or in it's policies or business or its management. After all not all of us make good lawyers, managers, doctors, scientists hence a

good reason to listen to the professionals

Although technology is a topical discussion point in Ghana we quite often don't know well how it comes about and see acquisition/procurement first. Technology is rather developed with several hundred man years of work on solution to a problem.

We often we come late to the party after having disbelieved local technologists and waited for global adoption. Of course by that time we are already in the digital divide and it becomes a catch up struggle.

For this keynote I'll share a bit on the history of the first decade of internet in

Ghana, enumerate a few near misses in Ghana's technology adoption cycle, subsequently make remarks on the style of governance appropriate for the Internet, security and privacy

The history. I was talent searched in 1973 while in the USA by the late prof FKA Allotey to continue graduate studies and return to Ghana as first PhD in computer science in subsaharan Africa in 1977 to teach. We developed early computer science education and workforce in Ghana. I knew the Internet well from graduate school and I concluded in 1988 that both government and academia would not be able to deliver the Internet to Ghana so I formed a private sector

company 'network computer systems' in 1988 for these my ventures

The internet finally came to Ghana in December 1993 after long years of building computing workforce in Ghana.

NCS was then providing networking services for digital equipment corporation customers and using a proprietary protocol decnet. We began converting our customers onto the open tcp/ip in late 1993 using dial up ip to an international location in London at Pipex IP

The killer application at the time was email service and so we collected emails of clients nationally using uucp

to be ready for next international dial up window. During the open window web access and download were possible but constrained by dial up bandwidth of 9.6 kbps. This link was later on upgraded into a 9.6 kbps leased line in 1994 and installed a vsat system in 1996 with bandwidth of 128Kbps

In 1996, two new entrants Internet ghana and AfricaOnline joined the market. NCS pioneered many things internet including gh registry - 1995, first websites 1996, eCommerce-accushop in 1998, online broadcasting in 1999

NCS was however shut down finally in November 2003 leaving a scar on

history of internet in Ghana..believe it or not there were some people who were jubilating an illustration of how destructive we as a people can be. NCA chairman of the time said was afraid of the one who admitted responsibility for the shutdown on Joyfm. A 10th December article, still available at Ghanaweb, describes the shutdown as equivalent to shutting down AOL, MSN and YAHOO

Some near misses. Here are some few other examples from personal experience of near misses; we could have made it big but we chose otherwise

When NCS pioneered PC to PC communications with Clicktel.biz in

2004, we were stopped by NCA. Meanwhile PC to PC was out of scope of regulation as not doing telephony. Meanwhile we were competing with Skype at the time who were not under Ghanaian regulation

EShika- taking cedi online in 2005. We piloted a premium card for customers who could use their eShika card for payments at selected locations. We had a call from the minister and a visit from central bank asking us terminate; that was a PayPal competitor

Blockchain and crypto currencies. More recently in 2015, we attempted to understand this new technology by starting a mining operation. We saw complaints about how we are

contributing to concerns of terrorism from financial crimes unit and had to explain at a meeting at Bank of Ghana. We know eventually that SEC expressed it's determination to shutdown crypto currency operators. We decided to kill it..yet it's billions of dollars worth now

From time to time, I am asked, how come we don't have our own Google and Facebook? Sadly, we had killed many initiatives with conservative.

The lesson is surmised as 'nurture not punish' techpreneurs as they become future wealth

Enough of the stories for now...

The style of governance appropriate for the Internet is the bottom up multi stakeholder approach to governance...self regulation

I am speaking from experience having been Chairman of the General Assembly of the DNSO at ICANN in the '90s, founded the African Regional Internet Registry, Afrinic, and other organizations that practiced multi stakeholder bottom up decision making

We advocate widespread application of bottom up community decision processes locally in internet, cyberspace security and privacy policy discussions

My interest is what a community must do correctly in order to evolve a functional bottom up decision process

The bottom up decision process is not same as have a policy or a decision in hand and consulting interested parties on it. That would be top down.

This is about a community addressing its issues together and making rules, standards, decisions or policies in a bottom up way

The origins of bottom up processes come from how the internet is, a network of networks, internetworks. Each network is owned by a different organization/person who has his own

providers and for different purposes and following different rules or policies

It is evident that for the whole internet is to work as one, each network must surrender and follow community agreed standards and policies we together create. That is bottom up

There are several situations where this naturally occurs but some examples in Ghana are:
-   In an NREN has campuses where each is governed by different policies; can apply this to develop network routing policies, security policies, privacy policies etc
-   A campus has different departments with varied technology usage patterns and policies; can apply

to acceptable use policies, networks interconnection policies, BYO device rules etc

- Network operators come together to an Exchange Point (IX) to share a large switch to pass traffic to each other. Their behavior is self governed by policies
- An e-government network is made of network of department and agencies of government; can develop use policies and standards
- An inter banking switch in an interconnection of banking networks; can develop use policies and standards
- A cyberspace security governance would have wide variety of participants from law enforcement, policy makers, technical community, operators,

education, businesses, civil society and typical ordinary users may determine elaborate guidelines for how to behave in cyberspace or make policies

The issues addressed are complex requiring multidisciplinary skills across organizations in a community

The system is assumed to be open and documents are published to a community who participate in developing the document

We cannot over emphasize roles and responsibilities in multi stakeholder process. We want to find a rich community with open participation by engineers, businesses, civil-society

organizations, and governments. A role needs be clear and with focused responsibilities and each actor needs to remain in their roles. A good balance of multi stakeholder diversity with participation of engineers are essential for good policies or standards in cyberspace

The process starts with a scope of work so that moderators can tell which contributions are out of scope and prevent digression

A proposal for discussion comes with a clear problem statement defining what to fix and a proposed solution

Discussions are guided by neutral moderators who are known community

personalities with track record determined by merit and experience.

These moderators work to determine the sentiments of the group on any issue looking if group can live with something under discussion. This is what is called consensus or strictly speaking rough consensus. The reason for not supporting a decision is more important than reason for supporting

Discussions are driven by a list of unresolved issues raised on the proposal by participants. Editors modify proposal as each issue is resolved. When there are no more issues the proposal has reached consensus

The moderators guide the process and give reports to group on progress of a proposal and the outstanding issues to build consensus on. If an issue has been discussed and closed it cannot be repeated unless have new evidence

The moderation must be rigorous and based on merit and substance. The moderators need to have enough trust and respect in group to make a good call on consensus

Now a message to the operator community. We had been taking measures to develop local content which meant developing local and regional infrastructure including

exchange points, data centers and in country hosting of ccTLD registry

Unfortunately, some carriers had focused on carrying eye balls to the consolidated global content providers bypassing local developments. Coronavirus pandemic has reemphasized the importance of domestic presence and e-commerce. We need to address how to grow local infrastructure and local content to serve local needs

Network Operators have a responsibility to carry only what they are to transport, securely and nothing more. Hence, Operators have to commit to honor those responsibilities. Where end to end encrypted content is

being carried it should remain so. Thus, the ISP community has an obligation to secure operation but also to privacy of communications

Initiatives for weakened encryption or back door for encryption as an aid for law enforcement may be well intentioned, but can be abused by authorities. This further presents opportunity for same to be discovered and used maliciously or for criminal activity

In conclusion we have come a long way, things have changed and improved. New actors have joined but we still missing putting all pieces together some times you have good

pieces but not others relevant. "Ana ngme anaa te"

I call on you to consider lessons learned from our time and use it to build in the new context

Perhaps for advice,
- create situation to have less impedance to Internet ie less shutdowns, less tax, affordable, less mass surveillance, education and technical support
- Pandemic reminded us to build our local and regional internet as global e-commerce can be impacted
- Establish favorable environment for all operators to thrive
- No more excuses around e-commerce

- The spirit of internet is collaboration and ISPs and operators need to learn to compete within the collaboration which attracts better players

Thank you for your attention