

Securing affordable high speed connectivity and efficient ICT access and usage for African Researchers and Educators

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I would like to thank the organisers for the opportunity to come and share with colleagues in Kenya and from other parts of Africa about digital publication. I am approaching this from the perspective of a regional research and educational network and therefore the perspective may be somewhat different from that of most presenters. We are however going to find out that the motivation is really the same. I will give the presentation under the four main headings as shown (on slide 2). I should however state from the start that as publishers, you have got major interest in research and education networking, because the product (the content generated by researchers) is handled by you.

It is well established that the production of intellectual property output in Africa is extremely limited, and you could research this independently. We argue in the Alliance that this deficit can be addressed; we believe there is a missing link. I said in the morning (in a Q and A session), and this was deliberate, that beyond connectivity we have got people, and with interaction between those different people we get the generation of ideas, and knowledge – content. By enabling connectivity and therefore enabling people to talk – if you like, in the African way – we can once again stimulate intellectual output (slide 3). That is our thesis. I should point out that we don't simply make that statement - we are actually researching it even as we try to lay the infrastructure. We are carrying out research around the region so that we can track the behaviour and output of researchers and educators as they get higher capacity access to the Internet at affordable costs.

Now, why the Alliance? (slide 4). I know many of you come from this region, so you will understand what Ubuntu is: That feeling that we are all responsible for each other in the community. The welfare of the community is your responsibility and your welfare is the responsibility of the community; that mutual support in a community. This was adopted as a name for our network because we were focusing on working together, pooling together the strength from across the region stretching all the way from Sudan down to South Africa so that we can then support each other in achieving our goals and principle objectives. We want to integrate East African and other African research and educational institutions into the global research and education community.

In Europe they have got GÉANT - the network that connects all the universities and research institutions in Europe - and GÉANT is connected via the Internet to similar networks in North and South America, Japan, the Pacific, India and the rest of Asia, and to China. This means that the entire intellectual community around the world is interconnected with the exception, so far, of the African continent. This is what we are trying to address so that we in Africa can really compete on an equal basis. And to enable this we are striving for equality and not equity. I hate the word equity. We want equality in terms of access, in terms of bandwidth, cost, and all other factors. We want our researchers to have access to so much bandwidth that bandwidth is no longer an issue. When you wake up in the morning you don't wonder if you are going to have enough oxygen in the air. You assume that you are going to wake

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up and breathe. By the same token a researcher in Africa, an educator, should be able to have the same attitude to bandwidth.

We are focusing on the creation of national research and education networks (slide 5). I am sure many of you may know about KENET, the Kenya Education Network which interconnects all the universities in Kenya, and which Dr. Ndemo (a previous speaker, the PS at Kenya's Ministry of Information and Communications) has supported a lot: Government has provided funding to KENET with which they are rolling out optical fibre interconnecting all the universities in Kenya, and also linking them to the global environment through the UbuntuNet Alliance network. This enables part of our dream, that each person can have sufficient bandwidth, can have sufficient connectivity to access any information on the web anywhere in the world at high speed and to engage especially in discourse with colleagues around the world.

In terms of strategy we have also come up with our backbone vision (slide 6). If you look carefully you are going to find that the capitals of our region are all there. The access points to the global Internet are in Port Sudan, Mogadishu, Eritrea, Dar-es-Salaam, Mombasa, Maputo, Mutunzini, down to Cape Town: That's where the international cables land. We also have the inland cities - you will note that each of these is the capital of each of the countries. These are the planned points of presence of the physical fibre network that is going to interconnect all our countries, dedicated to research and education networking; dedicated to intellectual discourse and the output of intellectual property for publication.

Here is another view (slide 7). This is now the real fibre as it runs around Africa. It is amazing by the way that until five years ago as Dr. Ndemo said there was hardly any fibre around the continent. Now, taking into account the global financial depression, the level of investment over the last two years it is just incredible. We can no longer talk about a shortage of international connectivity - we have now got to address only the challenge of internal connectivity. What we have done as shown on this slide is to map out all the internal fibres that exist. Some of this is with power companies, some of it with railway companies, some with oil pipeline operators, and some with telecommunication companies. You can not quite see it all in detail in this limited image, but if you can access this amp at our website which is www.ubuntunet.net. The map is interactive so that you can actually zoom in on say Kenya and see what exists in Kenya in detail. This part of the work we have been doing in terms of preparation for the regional fibre network.

Moving ahead (slide 8), you can also see that we have expanded membership considerably. Our membership now includes Sudan, DRC, Ethiopia, Somalia (incredibly very active), Uganda, Kenya, Tanzania, Zambia, Malawi, Mozambique, South Africa. Namibia is coming on board. Angola, Botswana, Zimbabwe, Lesotho and Swaziland are also in development. Within the next year or two there will be a solid block of members covering eastern and southern Africa. At the same time we are working with colleagues in West Africa, and the brown part of the map shows the West and Central African Research and Education network. And along the top we have got the Arab countries already connected to Europe.

Digital Publishing in Africa: The next steps

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We expect within the next three to five years that all the countries in this region will be interconnected: that means all the universities are going to be connected to a dedicated education and research network without having to go via the commercial service providers except for data transport where necessary. In terms of progress, that (slide 9) gives you a quick overview of what is happening in different countries. Only South Africa can begin to compare with the rest of the world in terms of connectivity. Not surprisingly, intellectual property output from South Africa it is extremely high. People are online all the time. They have got more than 10 gigabits dedicated to the South African regional research and education network and the government has rolled out a 10 gigabit backbone within South Africa for their education and research institutions. This compares well with any other network in Europe or USA.

We can look at this connectivity as rivers of intellectual collaboration and intellectual output. If the connectivity is the rivers, we must have water, or lakes, to feed the rivers. The lake is the intellectuals, the researchers and educators and writers and people doing all kinds of creative work sitting around Africa, but we don't have access to them, because they don't have any means of delivering their content to us online.

Somebody was speculating, I think it was Charles (Batambuze - a previous speaker from NABOTU, National Book Trust of Uganda), that there is so much content around that somebody can actually make a business of simply collecting it, organizing it and then selling it, putting it online and then passing the royalties back to the producers. So this is where we are going to go.

In terms of progress (slide 10) as I have mentioned, KENET is doing very well. The Kenyan Government has been very supportive. They already have more than 4 times the capacity they had two years ago coming to the universities, and they are soon going to add another three times that capacity.

Governments are increasingly coming onboard to support research and education networks but there is still a gap remaining, and that is the gap we are addressing here today. At the end of the day, if we don't have content, if we don't have material to publish, it will be like laying a very modern pipe network in Nairobi and putting all the plumbing in the houses, but with no water running in those pipes, and this depresses us. Therefore, colleagues, we have a major responsibility here: how can publishers reach the intellectual community and both encourage and enable them to publish their work?

Academics are used to the old publishing traditions. How can publishers reach out to them and make sure that they understand the opportunities that they can provide for them? Why is it that if I have got to publish I must start dealing with publishing houses in Europe and USA and India? Why can't I automatically come to somebody in Kampala or Nairobi, or Kigali or Lusaka? Where is the gap between the publishers and the universities?

I hope these questions can be answered today because without answering them, we are wasting our time. We shall still have that problem: a researcher writes a paper and sends it to Europe. And by the way those of you in research and education know this: if Charles is my student and I am his supervisor and he sends his paper without my name on it chances are they will say it is not suitable. Do you know this? But if he adds my name and it is exactly the same content chances are they are going to say it is alright. The same thing happens when an Africa researcher sends their

Digital Publishing in Africa: The next steps

www.informationforchange.org

paper without co-authoring with say someone from Europe. This is very real, colleagues, when you are talking about publishing in the academic world: this is very real.

So you find that reviewing is already weighed against many of our researchers and publishers: to counteract that we must start our own publishing here in Africa, so that we don't have to look outside. We must look to ourselves in terms of development and that's the major challenge for you. Don't simply engage outside the universities, because the real source of sustainable material is going to be in the universities and research institutions.

We are doing our part as the Alliance (slide 11). We already have real networks connecting researchers, even if coverage is still limited. We are already connected to the European network but the pipe is still very limited. We have now got a grant of 15 million Euros from the European Union which is going to enable part of the network, that is the interconnection between the different African countries. Already the countries are working on the internal networks and so this piping is falling in place. As Dr. Ndemo said in the morning: it's not just Kenya but across the region that the piping is falling into place - but the question is "Where is the content?"

Costs have gone down (slide 12); five years ago people were paying US\$6,000 for 1 megabit per second per month. Currently it's about US\$1,000 but that is still too high. In South Africa it's now less than US\$100, but - guess what - for the last five years in Europe and USA they have been paying less than US\$15 per megabit per second per month. Just think about that kind of distortion. What is income per capita (all figures from the UN Statistics Division for 2008) in Europe? Take Sweden, US\$52,000. What is the income per capita in Kenya? About US\$788. That's a factor of about 66 between Kenya and Sweden. So when somebody in Sweden is paying one sixtieth of what you are paying this is not one sixtieth of what you are paying actually it means you are paying about four thousand times more for the same bandwidth than somebody in Sweden.

Can we talk about intellectual equity in that kind of situation? We can't. So our role as the Alliance is to try to remove that inequity and to allow publishers to step into the remaining gap to ensure that removing that access inequity is not a waste of time because there will actually be material to be published.

Permit me to conclude with that famous statement from Nelson Mandela (slide 13). "We know that we have it in ourselves as Africans, to change all this [the challenges we face]. We must assert our will to do so. We must say there is no obstacle big enough to stop us from bringing about an African renaissance". This is what we are talking about today.

What change can we expect because this workshop has happened? Are we going to stand in the way of change, or are we going to say we cannot do it? Or will we just do it!

Thank you very much.