# Kenya's Pasha Centres:
## Development Ground for Digital Villages

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January 2011

Cisco Internet Business Solutions Group (IBSG)

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### Overview

The positive relationship between increased broadband access and economic growth is well-established. It is estimated that raising broadband penetration in emerging markets to levels equivalent to those of Western Europe could add US$300 billion to $420 billion in gross domestic product (GDP) and create 10 million to 14 million new jobs.[1]

Because of this correlation, many nongovernmental organizations (NGOs) have launched initiatives to increase broadband access in emerging nations. The World Bank broadband initiative—the Regional Communications Infrastructure Project (RCIP)—aims to lower the cost and extend the reach of international broadband capacity, among other goals. In March 2007, as part of the RCIP effort, the Government of Kenya agreed on a program to develop "digital villages"—rural villages connected to the Internet—giving residents access to the range of information and services provided by the web. In 2008, the Cisco® Internet Business Solutions Group (IBSG) formed a trusted partnership with the Kenya ICT Board (KICTB) to help develop the board's understanding of the issues it needed to address within the RCIP.[2]

Over a two-year period, the Cisco IBSG team helped the KICTB identify the many challenges of establishing a digital village—and how those challenges can be overcome. Project findings and planning tools were then provided to the board to fuel its efforts to make Kenya a "Connected Nation." This work has also contributed to Cisco's expertise in addressing the digital divide found in many emerging market countries. Cisco now has a toolkit that can be used to help other emerging market countries develop a blueprint for the implementation of digital villages based on data-specific modeling scenarios.

### Challenges

In 2007, as plans firmed up for the implementation of submarine fiber-optic cables to deliver broadband connectivity to Kenya, the KICTB agreed with The World Bank that Kenya would be a proof-of-concept country for digital villages. In 2008, the first of three submarine cables was laid, bringing sufficient bandwidth to demonstrate the possibilities for Kenya.

When the Cisco IBSG team began working with the KICTB, it became clear there were few specifics mapped out for creating a digital village—and many unanswered questions:

- Which services did villagers want or need most?
- How would villagers use these services?
- How much capability was required by each village?
- Which service model would be most successful in Kenya's culture and environment?
- How would each digital village be set up and manned?

There was a great deal of pressure on the KICTB to begin rolling out digital villages. The program had been announced prior to Cisco IBSG's involvement, but lack of prior experience with digital villages and no clear blueprint on how to proceed were slowing the

effort. The KICTB realized that there was a great risk of wasting the funds committed to this effort.

## Preparing the Groundwork

Cisco IBSG ran a weeklong, deep-dive workshop with the KICTB in July 2008 to review plans and progress to date. As background to this workshop, Cisco also developed its understanding of local and international perspectives pertaining to digital villages. In Kenya, there was considerable private-sector interest in establishing cyber cafés in urban areas. Some SPs, such as Kenya Data Networks, were trialing digital villages in rural areas. Experiences elsewhere with digital villages (such as in India) demonstrated the difficulty of formulating an appropriate, scalable business model. The workshop helped the KICTB identify key challenges in more detail, and confirmed the need for a more coordinated approach to supporting business planning, services, content, and core technical requirements.

Cisco IBSG and the KICTB reached the conclusion that rather than immediately publishing calls for proposals for digital villages, the KICTB should first create a pilot program ("action research") to develop local lessons and experiences. The board recognized that models developed in other locales might not be successful in Kenya's environment, and it would be disastrous to roll out hundreds of digital village centers without first testing some concepts.

## Pilot Program: Pasha Centres

Renamed the "Pilot Pasha Centres," or PPCs ("pasha" means "to inform" in Swahili), the digital villages pilot program was launched in January 2009. Five entrepreneurial cyber cafés were identified across peri-urban and rural communities as initial sites for the PPCs. These created an integrated test bed for research and monitoring of services and user behavior to develop a sustainable business model (see Figure 1).

**Figure 1.** Steve du Mont (left), Vice President of Cisco IBSG, and Bitange Ndemo (right), Kenya Permanent Secretary, Ministry of ICT, Open First Pilot Pasha Centre in Village of Kangundo


Source: Cisco IBSG, 2010

By April 2010, five PPCs equipped with 512k connectivity, Cisco WebEx®[3] online conferencing, power surge protectors, projectors, printers, scanners, and fax machines were running and able to access a Pasha portal. The portal offered a range of content and training services, as well as links to a variety of content from the Connected Knowledge Centers program that Cisco Corporate Social Responsibility supports. PPC entrepreneurs and managers were trained, exchanged learnings, and—using Cisco WebEx—connected on a regular basis to share progress with the KICTB, Cisco IBSG, and each other.

An independent review of the PPC was commissioned (from Mediae/Synovate[4]) that helped the KICTB identify six core factors essential to the success of a Pasha Centre:

- Physical infrastructure such as reliable power supply and connectivity
- Auxiliary services
- Marketing for awareness and education
- Entrepreneurial initiative in customer service and experience
- Innovative new uses of the Internet for business collaboration and "edutainment"
- Training accreditation for various vocational e-learning courses

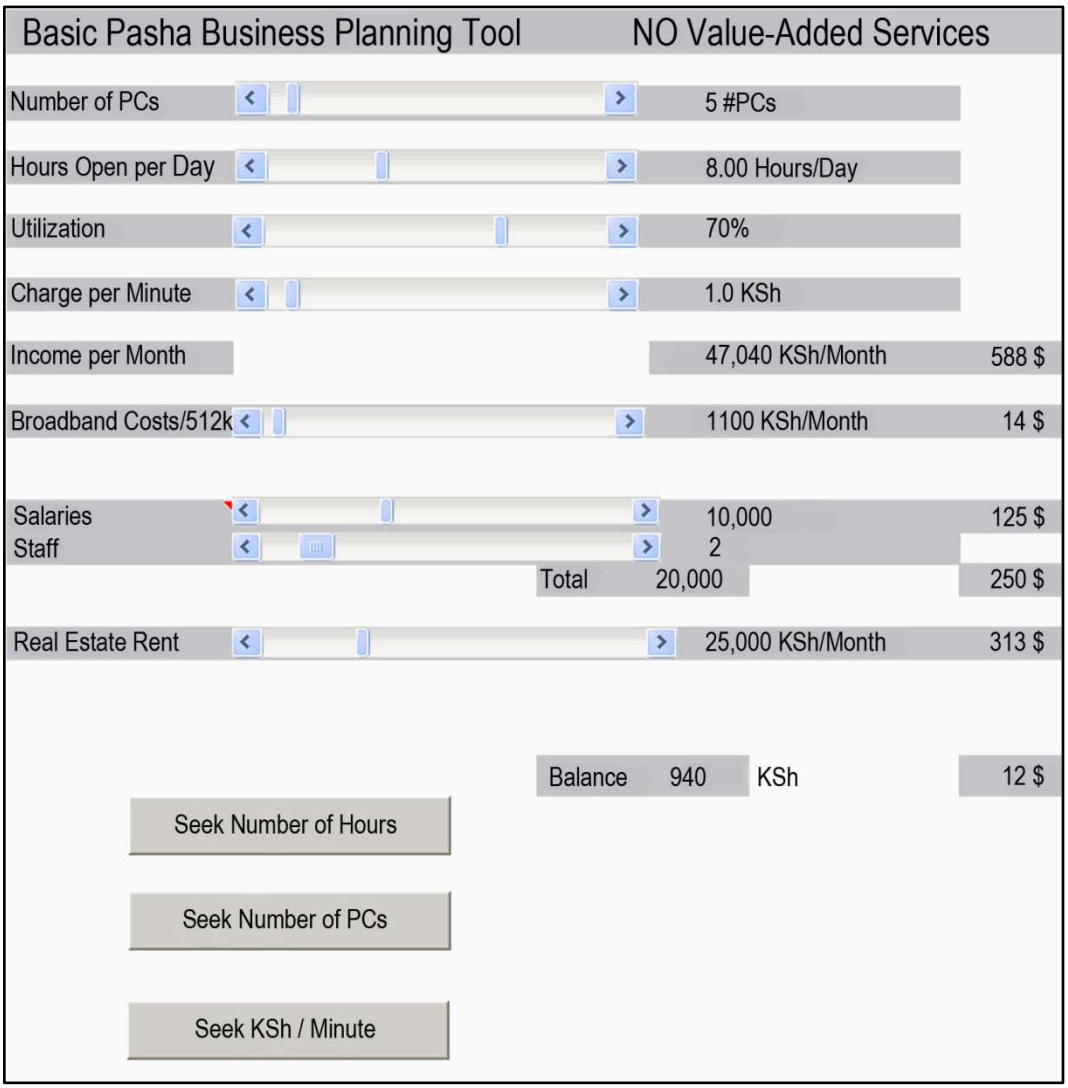
It was clear from this initial work that the managers of the PPCs required help with business planning. Cisco IBSG set about developing tools to assist with the business planning process.

## Solutions

### Pasha Centre Business Planning Tool

Figure 2 shows a planning tool developed by Cisco IBSG that enables a Pasha Centre to use interactive slide bars to explore breakeven options for the delivery of basic services. An income of KSh47,040 per month can be generated using five PCs available eight hours per day with 70 percent utilization and charging KSh1 per minute. (The sliders can be moved to increase the number of PCs, to change the number of hours open per day, and so forth.) But broadband costs, salaries, staff, and rent all need to be taken into account. The illustrative balance of KSh940 (around US$12) is unlikely to be a sustainable solution, so alternative solutions needed to be explored. For example, the number of PCs could be set at 15 and the salary costs doubled. Profits made from selling airtime, printing, binding, and so forth must be added as well.

**Figure 2.** Pasha Centre Interactive Business Planning Tool Enables Managers To Model Potential Outcomes



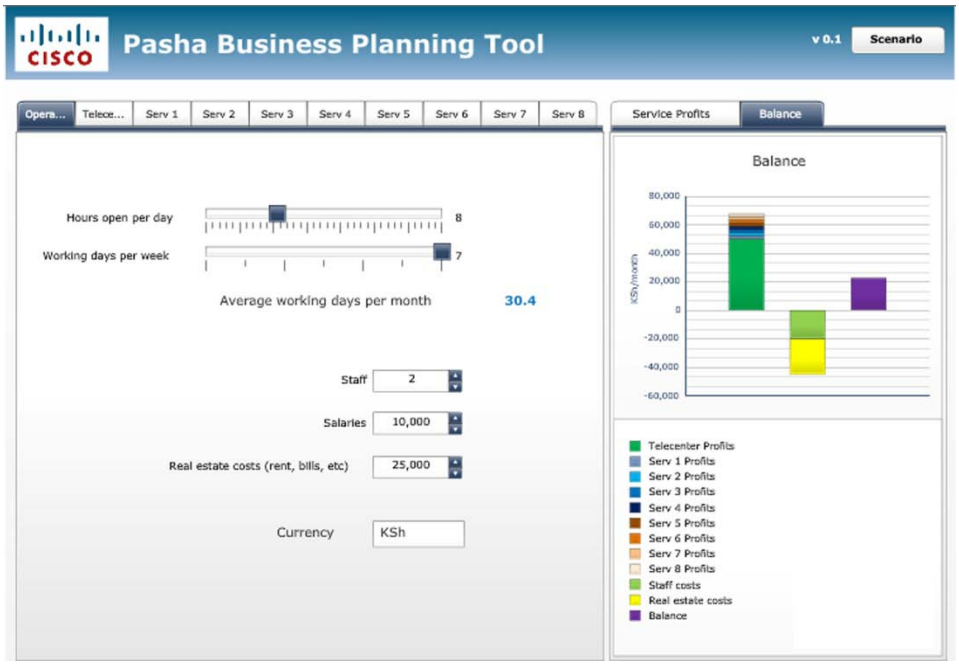

Source: Cisco IBSG, 2010

IBSG continued to develop this model to make it more open, giving end users the flexibility of pull-down menus that enable them to add revenue- and expense-generating activities of their own choice such as computer IT training, photocopying, CD/DVD burning, or IP telephony charges. The distribution of profits among these value-added services, and the balance between profits and loss, are illustrated in Figure 3 and Figure 4 (and there is scope for another four services to be added).

**Figure 3.** Pasha Centre Planning Tool: Distribution of Profits by Services (Illustrative)


Source: Cisco IBSG, 2010

**Figure 4.** Pasha Centre Planning Tool: Balance of Profits and Costs (Illustrative)




Source: Cisco IBSG, 2010

## Services and Content

The Cisco IBSG team provided support and guidance on the training and content strategies that the KICTB was in the process of formulating. Cisco IBSG developed examples of how Pasha Centres could generate income, realize savings (in terms of value received by a community), and develop easier ways to buy services required by a community (see Table 1).

Many of these services need locally generated content, and Cisco IBSG also contributed to the development of the Tandaa Digital Content strategy that the KICTB began developing in 2008. Two rounds of grants for digital content and software application have now been awarded to this initiative.

## Core Technical Requirements for Different Types of Pasha Centres

The World Bank and the KICTB had initially envisioned only one model for the digital villages program, with each community housing a center with identical equipment, capabilities, and operations. Cisco IBSG's initial workshop and best practices from other locales suggested that a more successful approach would be to institute three categories of centers—basic, standard, and advanced—based on the needs and user behaviors of different communities.

From the work on content and services, and from the pilot centers, estimates could be made regarding the likely core requirements for technology and which services might be delivered from each type of Pasha Centre. The team assessed whether a given service should be an expected feature in a basic, standard, or advanced Pasha Centre (though, of course, it is up to local center managers to decide how best to run their businesses). Table 2 indicates the mandatory capabilities recommended for each.

**Table 1.** Cisco IBSG Developed Content Strategy for Pilot Pasha Centres

| | INCOME<br>Best scenario: money from outside community | SAVING<br>Value received; money stays in community | BUYING<br>Money to access services paid for outside community |
|---|---|---|---|
| COMMUNITY | Business process outsourcing; tourism and associated small enterprise (e.g., coffee shops, guest houses, taxis) | Banking | Trading centers; procurement |
| | Religious | (W)ISP-type connectivity plus services like IPT, IP video, and local directory | Insurance |
| | Matrimony | Photocopying & printing | |
| | Arts & crafts | Photography | Procurement |
| GOVERNMENT | eGovernment | Emergency communications & coordination | Bill payment |
| | Election work | | |
| HEALTH | Relatives attending patients who travel for health services | Better diagnosis support; continuing professional development delivered to home/work | Cisco HealthPresence™ diagnostics (X-rays, etc.) |
| COMMUNICATIONS | IP telephony | IP telephony | Internet access |
| | Voice mailboxes | Voice mailboxes | Cell phones, SIM cards |
| | Direct marketing & promotion | Fax | Directory services |
| AGRICULTURE | Rural industry (such as fabrication) | Education services; training | Farmers' support (Lifelines, etc.) |
| | Connected Agriculture | | |
| EDUCATION | Education services (education or ESL) | Education services | Training |
| | Tutors (outgoing) | | |
| ENTERTAINMENT | Astrology; music/film recording services | Film distribution (profit share) | Gaming (including online multi-user); film and video |
| SERVICES | Typing, data entry | Repair/tech support; cell phone & IT equipment | Entertainment (music & video) |
| | Recruitment services | | Ringtones |
| | Ticketing (trains. etc.) | Postal services | |
| | Marketing | Computer training; IT support & services | |
| | | Tool rentals | |
| | Office supplies & stationery | Access to government services | |
| | Computer retail | Printing & lamination services | |
| | Vocational training | Copying, scanning; CD/DVD burning | |
| | Presence-based services to support the above (e.g., on a per-session basis) | Instant & passport photography | |
| | | Presence-based services saving travel costs | |

Source: Cisco IBSG, 2010

**Table 2.** Mandatory Capabilities for Range of Pasha Centres

| Mandatory Functions | Basic | Standard | Advanced |
|---|---|---|---|
| Number of PCs | M*>3 | M>7 | M>15 |
| Internet access | M<br>256 kbps | M<br>512 kbps uncontended for all PCs | M<br>1 Mbps and above |
| Collaboration software | | | M |
| Video conferencing service | | | M |
| Web 2.0 access—webcam and microphone | | M | M |
| eSkills training services | M | M | M |
| Group training facilities | | | M |
| Pasha portal accessible | M | M | M |
| Government information | M | M | M |
| Management information | M | M | M |

* M = Mandatory

Source: Cisco IBSG, 2010

## Rolling Out and Scaling

As a result of the PPC program, Cisco IBSG now has a development toolkit, easy-to-use interactive tools for center managers, and practical experience in running Pasha Centres. The KICTB is considering how this knowledge can help it determine the best options for rolling out and scaling a full digital villages program, per its agreement with The World Bank. In March 2010, the permanent secretary of the Ministry of ICT announced that instead of charging service providers (SPs) 1 percent of their revenues to fund the Universal Access Fund, "Safaricom, Telkom Kenya, Zain Kenya, and Essar telecoms would be required to roll out the five digital villages each per constituency"[5]—a total of 4,200 centers. Safaricom has already converted more than 400 M-PESA agents to provide basic digital village services. But the other SPs have yet to indicate how, when, where, or whether they will comply. This is not a program with access to World Bank funding—it is reusing Kenyan-generated funds.

Many other initiatives are under way. In 2005, Posta Kenya equipped its post offices with two terminals each, providing Internet, email, and printer services, but this VSAT system has proven costly. The Kenyan government also runs information centers for gathering and disseminating news. These "Bashiri" centers are now being equipped with ICT and will enable free access to the Kenya e-government portal. The growth of private-sector cyber cafés in Kenya has also been extensive. In 2001, *The Nation* reported that "Most Kenyans are flocking to mushrooming cyber cafés and phone bureaus to make cheap long-distance calls."[6] This trend has continued and diversified, and Kenyan companies now are trying to help small businesses and individuals use Internet Web 2.0 tools to promote themselves with money earned from website registrations, placing advertisements, and transferring money.

Some of the most successful initiatives combine the different skill sets and interests of NGOs. For example, eight Community Knowledge Centres have now been established by Cisco Corporate Affairs through the Clinton Global Initiative to provide technology-focused programs addressing issues of community development,[7] and a community portal (The

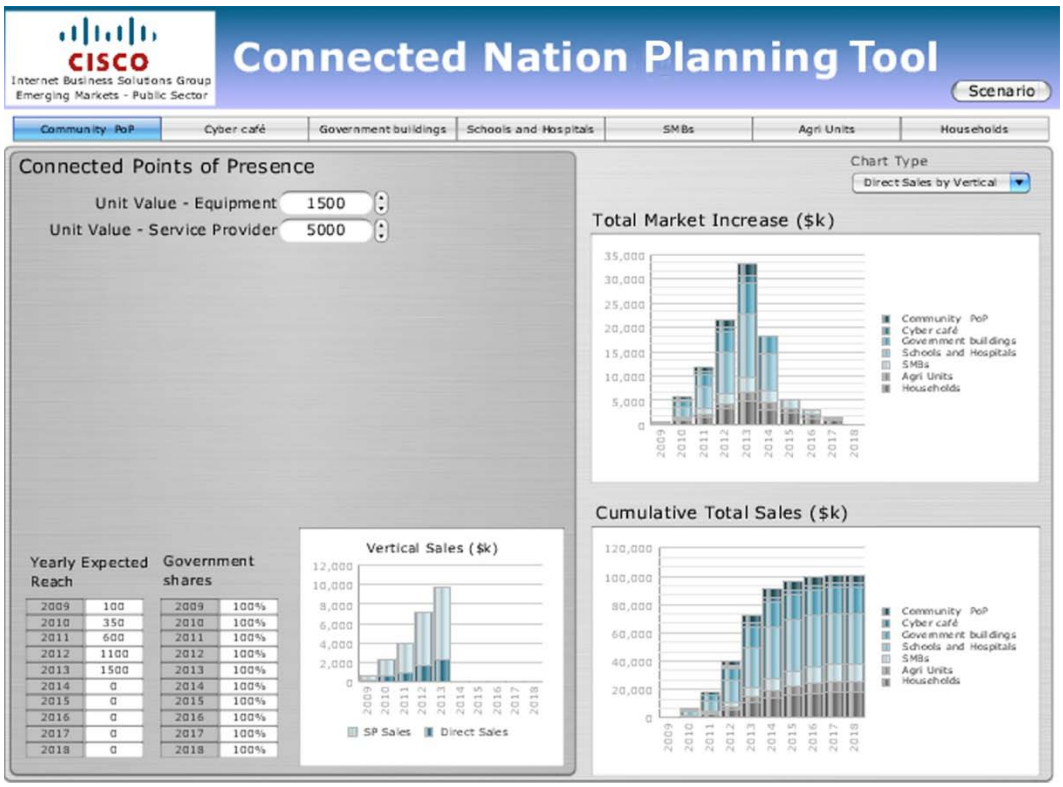
Beehive—Kenya) has been established.[8] Also with support from Cisco, another organization—the DOT Partnership—has been training local entrepreneurs,[9] and Cisco Networking Academies have delivered "IT Essentials" and other training (for which the Pasha Centres can charge). Large donors such as the European Union are also establishing digital villages in Kenya, such as the Merti Maarifa center located 240 kilometers from Isiolo town. This center cost more than KSh2.5 million and was funded by the European Union through the Drought Management Initiative (DMI).[10]

In considering how best to use The World Bank Revolving Fund for Digital Villages, it is Cisco's view that the KICTB should ensure that every constituency has at least one advanced Pasha Centre that runs on a commercial basis. This would also provide a platform for the exchange of news, views, and information with the central government and Members of Parliament, and allow SPs and other providers to deliver a range of "basic" Pasha services—as Safaricom has already been doing—to ensure the establishment of 4,200 Pasha Centres across Kenya. In light of this experience and those of similar initiatives, the KICTB could then consider using the remaining (and revolving) funds to focus on non-commercial locations, such as those with low-income user populations of less than 5,000.

These options need not be mutually exclusive, but there is good reason for tracking progress so that evidence of what works "on the ground" is fed into national policymaking and planning projections.

To help with this process, Cisco IBSG developed an interactive planning tool for the KICTB to project progress toward becoming a "Connected Nation" (see Figure 5). In the illustration provided in the tool, the "point of presence" is taken to be a Pasha Centre, but the tool enables projection of public- and private-sector services as well as household uptake.

**Figure 5.** Cisco IBSG's Planning Tool Enables KICTB To Project Kenya's Progress Toward Becoming a Connected Nation




Source: Cisco IBSG, 2010

Given the baseline data at the constituency level, the KICTB will be in a position to develop and share knowledge about the services Kenyans want, and those for which they are prepared to pay. This will be a continuous learning process, and one that will probably see declining need for Pasha Centres as the cost of technologies drops, incomes rise, and personal devices become the preferred means of connecting individuals. In the meantime, there is an opportunity to strengthen communities both within and outside Kenya through innovative uses of technology.

## Moving Ahead with the Digital Villages Development Toolkit

The comprehensive and versatile Cisco IBSG Digital Villages Development Toolkit can be used in any emerging market to establish successful digital villages. Rather than prescribing models and solutions, the toolkit provides a methodology for evaluating local needs and conditions, and for analyzing various business models within that context. It is fully transportable and scalable, and Cisco IBSG is already engaging with other countries to shape the deployment of digital villages.

By preventing costly deployment of inappropriate business models and by creating models that are consistent with countries' cultures and economics, Cisco IBSG aims to facilitate access to Internet-enabled information, education, commerce, and opportunities for some of the world's least-advantaged populations.

For more information on Kenya Pasha Centres and the Cisco IBSG Digital Villages Development Toolkit, please contact:

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## Acknowledgements

The author wishes to acknowledge the substantive contributions to this paper by Fabio Faria of the Cisco IBSG Research and Economics Practice.

## Endnotes

1. "Mobile Broadband for the Masses: Regulatory Levers to Make it Happen," Sören Buttkereit, Luis Enriquez, Ferry Grijpink, Suraj Moraje, Torfs and Tanja Vaheri-Delmulle, McKinsey & Company, February 2009.
2. http://web.worldbank.org/external/projects/main?pagePK=64283627&piPK=73230&theSitePK=40941&menuPK=228424&Projectid=P094103
3. Cisco WebEx is a hosted application combining real-time desktop sharing with phone conferencing so that every participant sees the same thing while talking. Often eliminating the need for people to travel and meet on-site, WebEx meetings can be scheduled in advance or started on the fly, and conducted internally with other colleagues or with external organizations. Anyone who has access to the Internet, the meeting number or invitation (which is the link to the meeting), and the meeting password may participate. Cisco WebEx also supports the use of a webcam, allowing participants to see each other when this option is on. All WebEx tools allow for audio recording and display of onscreen visuals during the conference.
4. http://www.mediae.org/index.htm ; http://www.synovate.com/contact/africa/kenya.html
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10. http://www.standardmedia.co.ke/InsidePage.php?id=2000010214&cid=14&story=EU%20sets%20up%20digital%20village%20for%20pastoralists

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