

ONLINE CONFERENCING TOOLS FOR DEVELOPMENT PRACTITIONERS

FINDING YOUR PATH TO THE RIGHT CONFERENCING SOLUTION

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Association for Progressive Communications (APC) | 2011

TABLE OF CONTENTS

Online Conferencing Tools for Development Practitioners	3
Why care about online meeting/conferencing tools?	3
1. Do I need a teleconferencing tool?	3
2. Deciding on the right tool	4
2.1 Size of my group	4
2.2 Privacy and security – Who else is in my meeting?	5
2.3 Interoperability	6
2.4 Meetings through a browser or through a client application	6
2.5 Bandwidth voracity	7
3. What special considerations might I have?	7
3.1 Integration with other tools	7
3.2 Integration with the phone network	8
3.3 Access to meeting documentation	8
4. One big service or a combination of smaller ones?	8
5. Third-party hosted service versus self-hosted server application	9
Meeting in virtual worlds – new way of teleconferencing	10
Glossary	11

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Published by APC
2011

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ISBN: 978-92-95096-10-3
APC-201109-APC-T-EN-PDF-0101



APC would like to thank the International Development Research Centre (IDRC) for making this publication possible.

ONLINE CONFERENCING TOOLS FOR DEVELOPMENT PRACTITIONERS

FINDING YOUR PATH TO THE RIGHT CONFERENCING SOLUTION

The purpose of this manual is to guide development practitioners in making the right decision when selecting appropriate online conferencing tools (OCT).

The guide will not give you suggestions for specific applications and services. It will help you to ask the right questions that will help you navigate the various OCTs that are available so that you can choose the best tool to fit your needs. It will also help to orient yourself in situations when the landscape of online tools is changing constantly and reliable information on tools for ICT4D practitioners are scarce.

Why care about online meeting/ conferencing tools?

Synchronicity and interactivity - Firstly, online conferencing tools (OCTs) give you a richer experience with online collaboration than other tools because they take you closer to being able to work with your team the way you would in a face-to-face meeting. For instance, you can see and hear others (through audio/video features), add your notes to a virtual flipchart, show others a document you are just working on in your word processor, etc. The key is interactivity - people are communicating in real time (synchronously), which allows very different collaboration dynamics than when they exchange documents by email, for example.

Breaking distances – Secondly, OCTs let you bring together people who could not be brought to a real face-to-face meeting because of high travel-related expenses or for other reasons. Particularly in the case of collaboration among international teams, online conferencing can mean huge savings in comparison with working face-to-face.

Smaller carbon footprint – By replacing international travel for face-to-face meetings with online conferencing tools, you are decreasing your carbon footprint. This is increasingly important as ICTs play a large role in climate change mitigation.

1. Do I need a teleconferencing tool?

Maybe you don't...

If your team is small and all you really need is to regularly talk (voice), exchange chat messages, exchange files instantly and eventually see each other on video, you probably don't need a complex teleconferencing tool.

Your needs can be met by using one of many existing free VoIP (Voice over IP) services, such as Gizmo, Skype, Yahoo Messaging, or any tested video-enabled SIP telephony service and software.¹ To use these services, you need to register with the given service (create an account) and download a client.

For most of these free services (perhaps with the exception of Skype) a number of alternative clients are available, ranging from heavy applications that have advertisements and add-on services to lightweight open-source clients.

For some of the aforementioned tools, plug-in applications/ services are available than provide additional features, such as desktop sharing.

....or do you?

If these features don't do what you need, your group is too big to be able to connect through such tools, or the communication becomes too messy, you probably need an online conferencing tool. So read on!

2. Deciding on the right tool

When choosing a teleconferencing tool, there are several criteria to take into consideration:

2.1 Size of my group

How large is the team with whom I will be meeting? Which OCT is best for a meeting of such and such size?

There is no way to respond to this unless you check the participant number options of particular OCTs and see if the cost of the corresponding license matches your budget. This will help as a first filter before you start start cross-checking other OCT services.

A number of online meeting services offers a basic free license for small teams of 2-5 participants, depending on the service.

The next level of license usually covers between 15 and 50 consecutive participants. Commonly you can have up to one hundred participants in your meetings, and a number of services offer licenses that allow you to accommodate hundreds of participants. However, very large meetings become unmanageable - not because of technology, but because they simply cannot be effectively facilitated, at least in the case of participative meetings (a webinar consisting mostly of one-way communication doesn't have such limits).

With growing numbers of participants allowed by specific licenses (packages) the license costs tend to grow

exponentially. The pricing strategy of all OCTs are different.

Feature availability – simple is nice

It is very easy to be impressed by the myriads of fancy features and services. Don't fall into that trap! An ideal tool for you is not the smartest one but the one that does exactly what you need, in conditions you and your colleagues work in. The more feature-filled an online platform is, the more likely it is that it will be bandwidth-demanding and you or your colleagues will have to deal with interoperability issues. Learning to use feature-rich tools also tends to be more difficult. Particularly if your group tends to change and new people join it frequently, keeping everybody up-to-speed with how to use the system and where they can find certain features can become a nightmare, especially if these questions arise during live meetings.

So, go for a tool that does best what you need. And what is that...? Determine the specifications by asking yourself the following questions:

1. What types of activities do I want to use it for? (That will lead you to being able to answer the next question...)
2. What features do I need to be able to use?

1. Type of activities

Questions to be asked when determining the main characteristics of the system and its features:

- Will you be using your tools for meetings or online trainings?
- If meetings, will you be meeting with a small project team or a large group that will require strong facilitation?
- If trainings, will the communication be mostly one-way (trainer → audience) or are you expecting more of a workshop setup with multi-directional communication?

Some tools are more geared towards conferencing and others towards training. Those geared towards training range from webinar-type (mostly trainer → trainees communication with limited feedback) to systems supporting more active involvement from the audience and complex communication.

Below is a table featuring different usage scenarios for teleconferencing tools, and the importance of specific features. Some key features like text chat, voice and basic video availability are not listed as it is expected that they are supported by all the considered tools.

Read the table as follows:

- - very important
- - somewhat important
- - not important or totally irrelevant

FEATURE / USAGE	Meeting with a small team (5-10 people)	Teleconferencing with a large team	Interactive training/workshop	Webinar
Screen Sharing	●●●	●●●	●●	●●
Multiple Presenters	●	●●●	●●●	●
Annotating Tools/Whiteboard	●●	●●●	●●●	●●
File and media repository	●	●●●	●●●	●●●
Mobile access	●●	●●● ²	●●	●
Multiple Video	●●	●●●	●●●	●
Recording	●●	●●●	●●	●●●
Polling and Survey	●	●●	●●●	●●●
Post-meeting Reports	●●	●●●	●●●	●
File Sharing	●●●	●●●	●	●
Breakout Rooms	●	●●	●●●	●
Strong Moderator Privileges	●	●●●	●●●	●●●
Private Communication Between Participants	●	●●●	●●	●
Integration with Online Learning Frameworks	●	●	●●●	●
Calendar - Scheduling Tool	●	●●	●●●	●●
Invitations' Manager	●	●●	●●●	●●●

The indicated scores of importance of individual features serve only as a guide to help you complete the table, and may differ in case for you depending on your specific requirements. Also, the various categories listed in the table are only indicative and are by no means exclusive. A good orientation overview of OCTs' most common features have been published by TechSoup.org and Idealware.org.³ Wikipedia has a OCT comparison matrix which can give you an idea about features supported by each of the main OCTs.⁴ However, to have an exact and up-to-date idea about what the specific tools offer, you need to visit the website of each service and check for currently available features there. Online conferencing tools are going through a period of fast development and new features are being continually being introduced.

2.2 Privacy and security – Who else is in my meeting?

Where do participants of my meetings come from and how sensitive are the issues to be discussed? Keep asking yourself this question particularly if new participants from different regions become users of your OCT.

Privacy and security becomes a major issue when:

1. Some meeting participants come from countries with authoritarian regimes and content of online discussions could jeopardize them if leaked from the meeting.
2. Participants need to remain anonymous, particularly

when not all meeting participants can be fully trusted (e.g. a large online awareness-raising training on gay and lesbian rights is organised and some of the participants come from countries where the gay community is persecuted).

3. Content of online discussions is highly sensitive.
4. Content of online discussions could conflict with the laws of the country where the service is hosted.

In order to meet securely in such situations, you need to make sure that:

- The OCT you are using allows user ↔ server communication over a secure connection. This minimises the risk that information could be intercepted.
- The system allows anonymous user access (e.g. using chosen cover-names), not allowing meeting participants to track other users' identity.
- Eventual recordings or other meeting documentation (participant lists, chat logs, etc.) is accessible only to you as the administrator or to designated users. Even browser-based online meeting tools usually store some files locally, at least for the duration of the meeting. Make sure there is no sensitive data among those files or that they are safely deleted when an online OCT application is closed. Be extra careful if you are participating in an online meeting from a public computer.
- The OCT you are using either allows you to prevent non authorised participants from accessing your meeting, or, you ensure that your meeting schedule does not conflict with that of another group.

Most OCT user agreements contain provisions that hold you responsible for the content of online meetings and for making sure content generated during your meetings does not conflict with the laws of the country where the given service is based.

If your cause is legitimate and you could still run the above mentioned risk, look for services based in countries where the subject of your conversations is not problematic.

If that is difficult because most major OCTs are based in the US and Canada, consider setting up a self-hosted OCT on a server in your country.

Because of perceived anonymity, participants in online meetings tend to treat such spaces as secure and they venture to share information which they would rarely share in an off-line setting. Be aware of that if you are a moderator. When people start sharing sensitive information which doesn't correspond to the privacy level of your meeting, make sure to stop them. Ensure the privacy context of your meeting and the OCT you are using are clear both to you and all participants prior to every meeting.

2.3 Interoperability

What operating systems do your potential participants use?

This question is often difficult to answer, but even in those cases when you know that they are all using one particular operating system, you should base your choice of OCT on an assumption that computers with different operating systems will be involved in your online meetings. If you don't follow this rule, you are likely to find yourself 'locked' into one technology solution which doesn't permit participation of some of your colleagues when you most need it.

You can find out what operating systems are supported on the websites of all main OCTs. In particular, if you are not using Windows, you should properly test every system that claims to support your operating system. It is common that despite such assertions, not all features are available to users who don't use Windows OS (or Mac OS) or that you need to do complicated configurations before you manage to get all features working properly on your computer.

Note that the landscape of OCT's interoperability is changing constantly and many tools that were previously only available to users of Windows OS, can now be used on computers running any common operating system.⁵

2.4 Meetings through a browser or through a client application

Formerly, all web conferencing was done through specialised applications that participants had to install on their computers – client applications. The current trend is towards OCTs being accessible through a web browser, although some services are still run through specialised software.

Does it matter which of these two types of service I choose?

Technically, both types can work well. However, there are

two reasons why you should choose browser-based tools where possible:

1. **Interoperability** – Browser-based tools are more likely to work on all common operating systems supporting browsers in which OCT applications run.
2. **Easy access** – Your meetings can be much more flexible if participants can join them from any computer with a standard web-browser, without having to install a specialised application. That way it is easy to invite someone on the fly to drop into your meeting without any particular preparation.

2.5 Bandwidth voracity

Where do future participants of my meetings come from?

This is an absolutely key question, particularly if you are working with international networks or in countries where good bandwidth is an issue. If you are not sure where your meeting participants will be based, and you can't check with them, look at some of the statistics on internet access across regions to get at a general picture.⁶

Bandwidth 'consumption' varies greatly for different OCTs. Sometimes (though not always), low bandwidth demand can mean a trade-off for less features. Some services can be used even through a dial-up connection, although users connecting via a dial-up modem won't be able to use video features. Do check carefully bandwidth requirements advertised by different services, and test the system before contracting the service (usually a trial or a basic free version is available). Some service providers care about low-bandwidth users more, some less, and some don't concern themselves with them at all!

Unstable connectivity is another factor that can turn your meetings into a nightmare. If your participants come from regions where this is an issue, look for tools that address this by buffering the audio stream when connections are briefly interrupted, and playing it (both ways) in a faster speed when the connection between the speaker (or listener) and OCT is re-established.⁷ Naturally, this is possible only for short connection interruptions.

Note that the availability of good connectivity can change in relation to the completion of new connectivity projects in previously poorly connected regions.⁸

3. What special considerations might I have?

3.1 Integration with other tools

You might need your online conferencing tool to integrate easily with other online tools.

For example, if you are planning to run online synchronous (real-time) courses, you might want to look for a tool that allows integration with one of the existing online learning frameworks⁹ which will allow you to combine real-time meetings with a sophisticated system of online courses, document repositories, etc.

In other cases, you might have a specific need to broadcast (stream) your online meeting, so you will need a system that can be combined with online audio/video streaming channels. Yet another example can be a requirement to store polling/survey result in real time into a database which can be used for displaying results on public pages, etc.

Try to identify these not-so-common requirements, search for online tools that meet them and then review available meeting systems for that provide the possibility of integrating with the tools you need.

3.2 Integration with the phone network

If some members of your team can't get online, you might need your conferencing system to be able to "talk to" telephones. There might also be participants whom you don't want to share the teleconferencing space with, but you want to connect with them over them via telephone at some point. Participants connected over a phone won't be able to benefit from any of the visual or interactive features, but their participation can still be important.

It can work well where users are based in the same country(ies) to whose phone system(s) the teleconferencing tool is connected. This is usually the system of the country where the teleconferencing service is hosted and very often, that is the USA or Canada, at least for large services. Integration of participants over the phone works well in these countries because phone services are generally cheap. Complications arise with international meetings. International calls are usually too expensive to present a real option. Moreover, while this feature would be increasingly useful in regions with poor internet connectivity,

phone communication in the same regions is usually also expensive and international calls prohibitive.

If participation over the phone is a key feature for you, look for services that have call-in/out options for your country. If such services aren't available, you have the following options:¹⁰

1. A phone2VoIP service

For land-line phone numbers this service is only available in some countries.¹¹

2. Set up your own mobile phone2VoIP gateway

Where a landline phone service is not available, the same function can be achieved with a mobile phone call-in number, using a GSM gateway and computer connected to the internet. In both cases, your teleconferencing system must be able to communicate with SIP protocols, or you have to turn your VoIP communication into a phone call (thus increasing overall costs by paying a SIP provider for calling-out the OCT's phone number). Setting up your own phone2VoIP GSM gateway requires advanced and specialised skills.¹²

3.3 Access to meeting documentation

Do you need your meetings to be audio-recorded? Do you need to store the content of collaborative drawing on the whiteboard? Do you need to log chats, list of participants, etc?

Clarify exactly what your future needs will be for meeting documentation, as this can have important implications on your choice of tools. The need for more sophisticated documentation tools is usually more important in situations when you are using OCT for collaborative work or planning and decision-making meetings, etc.

Once you have answered these question, look for documentation options in the specifications of individual tools. The differences between documentation options offered via various tools is significant; some tools allow for storing entire sessions as audio/video recordings, others allow for exporting of the contents of whiteboards into a number of document formats, others allow saving of chat log to text files and so on..

Some of the more basic tools don't have any of these capabilities and you may find it very difficult to document sessions using additional software (e.g. software for audio recording, screen-casting, etc).

Select OCTs that allow you to export meeting documentation in common formats that you can open in other applications (txt, pdf, mp3), rather than those that store meeting documentation in proprietary OCT formats. Otherwise, you will need to open an OCT session every time you need to refer to meeting documentation.

Also, make sure that the manner in which the documentation is stored and shared meets your privacy requirements (e.g. if session recordings are stored on OCTs server, you might want these recordings to be accessible only with administrative password). Review section 2.2 for privacy and security considerations.

Again, in order to be sure that your meeting documentation needs will be met by your OCT of choice, you must look up these features in the OCT specifications that you can find on each OCT's website.

4. One big service or a combination of smaller ones?

Do I have to choose an OCT that satisfies ALL my needs?

Not always. If the tool is missing one or two features you need, but otherwise works for you significantly better than other OCTs, then you can consider combining it with other online tool(s) that would fill the gaps (e.g a tool for collaborative drawing online).

Advantages: You don't need to search for a one-size-fits-all tool which might be difficult to find, might be expensive or might be unnecessarily complicated.

Eventual disadvantages: Using several tools in parallel means that they are not integrated or don't communicate with each other, which can sometimes present problems. For example: it is hard to keep track of what participants are doing in different applications meeting facilitation becomes more difficult.

Using several tools synchronously also means that all participants have to have access to all of them. Meaning that all of you participants may need to have user accounts for all of the services.

A combination of several online conferencing tools is manageable only for smaller-size meetings.

5. Third-party hosted service versus self-hosted server application

There are several open source online conferencing projects. These applications can be downloaded and installed on one's own server. Self-hosted options are attractive because of the promise of free teleconferencing without license-imposed limits. Also, content shared during teleconferencing (Voice, text, video...) is not being handled by a third-party company.

However, you will need a very highly skilled administrator to install and administer an online conferencing tool, as well as a good infrastructure to support it (high capacity servers and very good available connectivity). These are issues you don't need to worry about when using one of the available third-party services. The following table summarises a general comparison between both options:

Because of the complexity of their interactive features, the configuration, administration and eventual development of these tools is challenging. At the same time, online conferencing is an increasingly competitive area and several large corporations make large investments in the development of existing and new online services. Therefore you should do a thorough assessment before deciding to go for a self-hosted solution. The results you could reach in terms of appropriateness to the specific needs of your particular network might not justify your investment in developing your own private OCT work.

	Self-hosted Open Source OCT	Third-party Service
Hardware Requirements	High capacity servers and machines that can run client applications on users' end.	Server is hosted by a corporation. You will just need to ensure that you and your users have machines that can run and install clients.
Software Requirements	OCTs are usually build on a combination of software, in addition to the main OCT server application. In case of open source OCTs, most (or all) required software is usually available for free (Java, flash, media streaming applications...).	Users of your OCT will need to install and run the clients available from the corporate provider. In case of web browser-based tools this is not necessary.
Bandwidth Requirements	High bandwidth demands (both speed and traffic) on the server where your OCT is installed. Users must have sufficient bandwidth required to connect with OCT.	The only connectivity consideration is on users' side – they must have sufficient bandwidth to be able to use OCT.
Expertise Level	You will need a very highly skilled administrator to install and administer an online conferencing tool. On users' side, your meeting participants must be able to use OCT's features.	The only expertise needed is the capacity of meeting participants to use the OCT tool (its features).
Cost	Free to install and use. Costs involved in using self-hosted solution consist of server hosting (server rental & bandwidth costs) and high-skilled server administrator.	The only expertise needed is the capacity of meeting participants to use the OCT tool (its features).
Security Considerations	Reliability of company with whom your servers are hosted, server requires regular security updates, difficult to maintain as high security features as are available in some corporate solutions (encrypted communication, secure connection via ssl), system owner/administrator has control over all content (security consideration for other users).	Reliability of corporation who provides OCT service (for details on other considerations, see next chapter).
Support for Meeting Participants	Available through project support forums.	Through project support forums or direct support from service provider (depending on type of purchased license - in general, the more you pay for the license, the more direct support you get access to).

SOME EXISTING OPEN SOURCE TOOLS

- **OS edition of Dimdim** — <http://www.dimdim.com/>
- **Big Blue Button** — focus on distance education — <http://code.google.com/p/bigbluebutton/>
- **OpenMeetings** — <http://code.google.com/p/openmeetings/>
- **Vmukti** — <http://sourceforge.net/projects/vmukti/>
- **Webhuddle** — <https://www.webhuddle.com>

Meeting in virtual worlds – new way of teleconferencing

Increasingly popular are meetings in virtual worlds.¹³ These are computer simulated 3D graphical environments where people meet with each other and interact through their virtual representations – Avatars. Given the fact that virtual worlds visually imitate real life spaces, people often meet in virtual meeting rooms and conference venues that resemble places that would be used if the meeting took place face-to-face in the real world.

Meeting in a virtual world adds a new dimension to online interaction and those involved usually perceive the contact to be “more real” than what they experience with other online tools.

An important limitation of virtual worlds are they require high bandwidth and hardware performance requirements (you need a relatively good computer with a good connectivity in order to be able to connect to any such virtual 3D spaces).

An example of a meeting space built in a virtual world is D-Island – an open development space built in SecondLife that hosts several venues available to development organisations for hosting meetings and training events:



www.d-island.org

GLOSSARY

Client application

A client is an application or system that accesses a remote service on another computer system, known as a server, by way of a network.*

Development (practitioners, networks)

Organisations and individuals working on foreign aid, governance, healthcare, education, gender equality, disaster preparedness, infrastructure, economics, human rights, environment and other issues associated with human development.*

Online conferencing (web conferencing / teleconferencing) tools

Tools used to conduct live meetings, training, or presentations via the Internet. In a web conference, each participant sits at his or her own computer and is connected to other participants via the internet.*

Self-hosted service

Applications installed on one's own server.

Synchronous tools

Tools allowing multi-directional communication in real time.

Third-party service

Service sold by a service provider (typically a corporation) who runs and develop given application on its servers and sells access to the application (service) over the internet.

Virtual worlds

A genre of online community that often takes the form of a computer-based simulated environment, through which users can interact with one another and use and create objects. Virtual worlds are usually accessed over the internet using specialised client applications.*

VoIP (Voice over IP) Internet telephony

The term refers to communications services — voice, fax, SMS, and/or voice-messaging applications — that are transported via the Internet, rather than the public telephone network (PSTN).*

Web browser-based tool

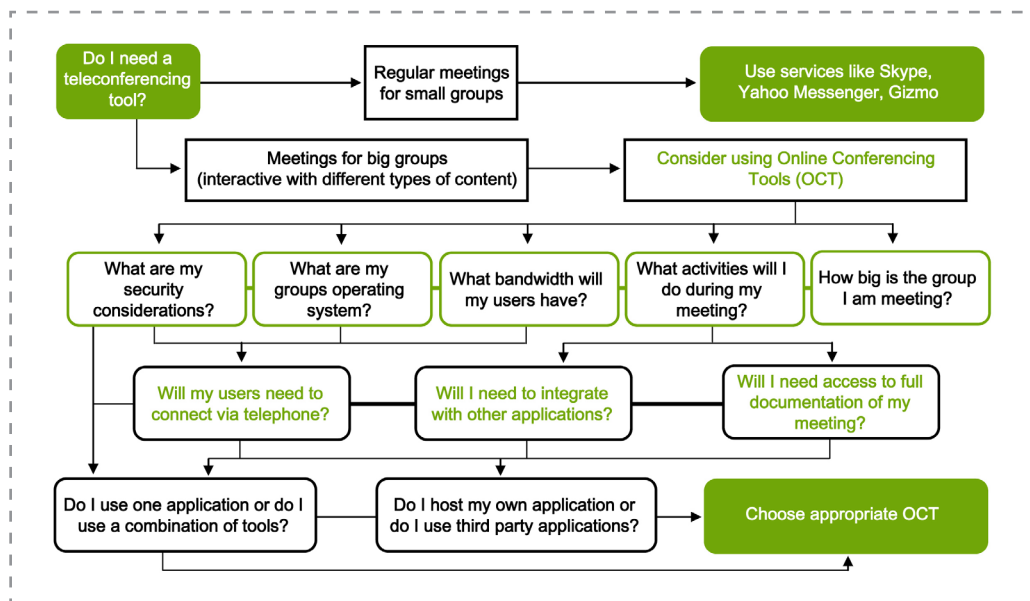
Online tools/services that can be run from within one's internet browser, without a need for installing a stand-alone specialised application (such as Skype application).

Webinar

A webinar is a neologism describing a specific type of web conference. It is typically one-way, from the speaker to the audience with limited audience interaction, such as in a webcast. Sometimes webinars include limited interactive features such as polling and question & answer sessions.*

*Definitions adapted from Wikipedia (<http://www.wikipedia.org/>)

Graph — process of selection of an appropriate Online Teleconferencing Tool



END NOTES

¹ A telephony using voice over IP technologies allowing tele- phone calls to be made over a computer network such as the Internet instead of the conventional telephone (landline or mobile) system. See http://en.wikipedia.org/wiki/SIP_Phone for more details.

² The usability & importance of call-in features drops in case of large international teams (see chapter on phone integra- tion)

³ <http://www.techsoup.org/learningcenter/internet/page5975.cfTm> <http://www.idealware.org/articles/few-good-online-conferencing-tools-0>

⁴ http://en.wikipedia.org/wiki/Comparison_of_web_conferencing_software

⁵ Generally, major OCT are improving their interoperability, also because they are increasingly becoming web-browser based as opposed to stand-alone client applications. That means that these OCTs rely more heavily on features that are already available in web browsers or various applica- tions that are plugged-into web browsers and tend to be platform (operating system) independent.

⁶ Number of people with access to fixed broadband connec- tivity is one of the indicators of situation in specific countries: <http://data.worldbank.org/indicator/IT.NET.BBND.P2/countries/1W?display=default>

⁷ Elluminate Live! Is an example of such system – <http://www.blackboard.com/Platforms/Collaborate/Overview.aspx>

⁸ New cables connecting given region with major internet backbones, new mobile data services, etc.

⁹ Many of the main teleconferencing services include call-in or/and call-out features.¹

¹⁰ For example: Moodle <http://moodle.org/>

¹¹ Call-in: Users are provided with a telephone numbers through which they can join a conference. Call-out: The sys- tem itself calls to predefined telephone numbers and whoever contracted teleconferencing service pays the bill.

¹² These services are offered by large international VoIP pro- viders (such as Skype, Gizmo...) but often also by local opera- tors. However, availability varies greatly depending on region and country.

¹³ Best known virtual world is SecondLife <<http://secondlife.com/>> in which D-Island is built. However, there are some open source alternatives, such as OpenSim <<http://opensimulator.org/>>, Sirikata <<http://www.sirikata.com/blog/>>, Open Cobalt <<http://www.opencobalt.org/>> and others.