

Connecting transience: a network for distributed creation.

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Selamat sore.

I'm here to introduce the MaP network project.

MaP, that stands for Multicasting Art Platform, is a distributed infrastructure and software network for art, science and education, that comes from the thinking and the work of Don Foresta. We've been working on the conditions of its concretization for several years, within an international consortium that brings together both universities researchers, independent researchers, artists and people from civil society. The purpose of MaP network is to enable very high bandwidth real-time interaction between people located in different places on the planet. By 'interaction', we mean not only exchanging webcam-like images and poor quality delayed sound, but the wider multimodal reciprocity we can obtain with existing technology and forthcoming ideas.

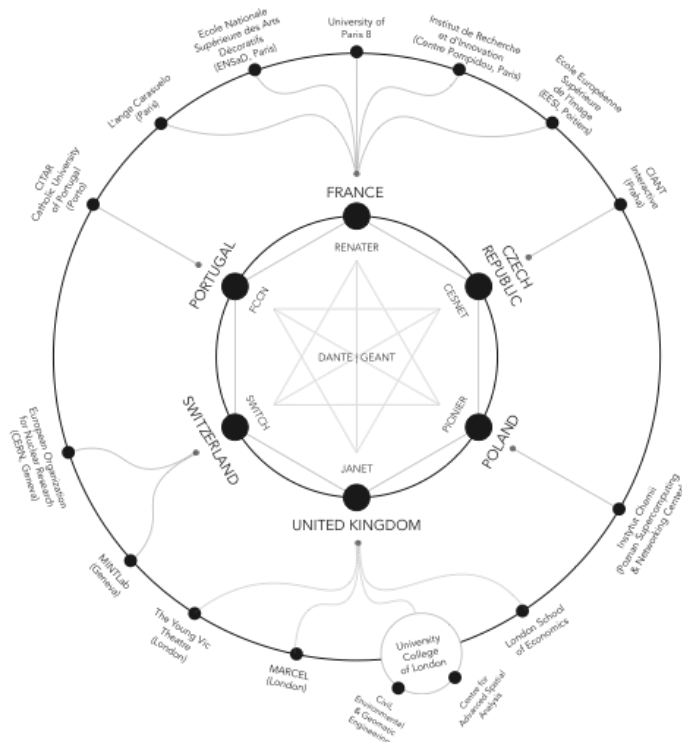


Fig. 1: The EU partners at the beginning of 2015 (top view).

Being myself working with theatre, it is through this input I want to discuss with you today, because I think it is the theater, by what it is a mirror of human interactions, from the collective rituals to the micro-events of daily life, that emphasizes the most the multiple challenges of this project.

The theater imitates life and is, from this perspective, probably the most multimodal and most

participatory art: it engages the whole body of the actor, his voice, but also and above all his intent, which will be manifested by the gesture determining the quality of his presence in the service - the word is important – of a bigger event than him, organized collectively: the show.

These are the multimodal connections between the actors and actresses on stage that will enable this encounter, which is ultimately the very place where the work will emerge, and that occurs with each of the spectators,

individually and collectively, in that they carry with them the collective history, their personal history and above all personal context at the very moment of the show.

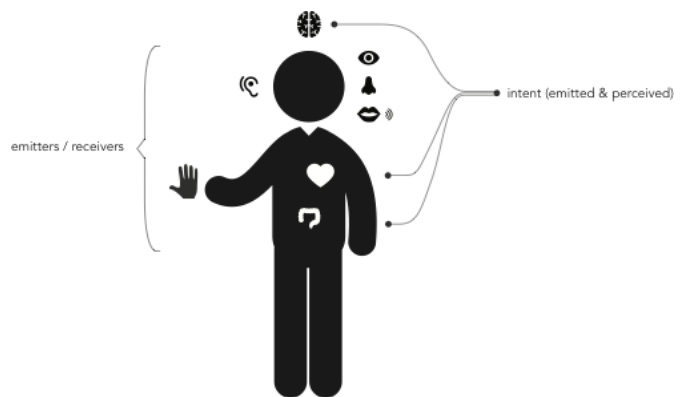


Fig. 2: Multimodality for presence.

For its immediacy and simplicity of the basic conditions that allow its presentation, as well as the complexity of the parameters that permit this confluence, the theater has evaded the question of the reproducibility of the artwork that went through the twentieth century. Like... life!

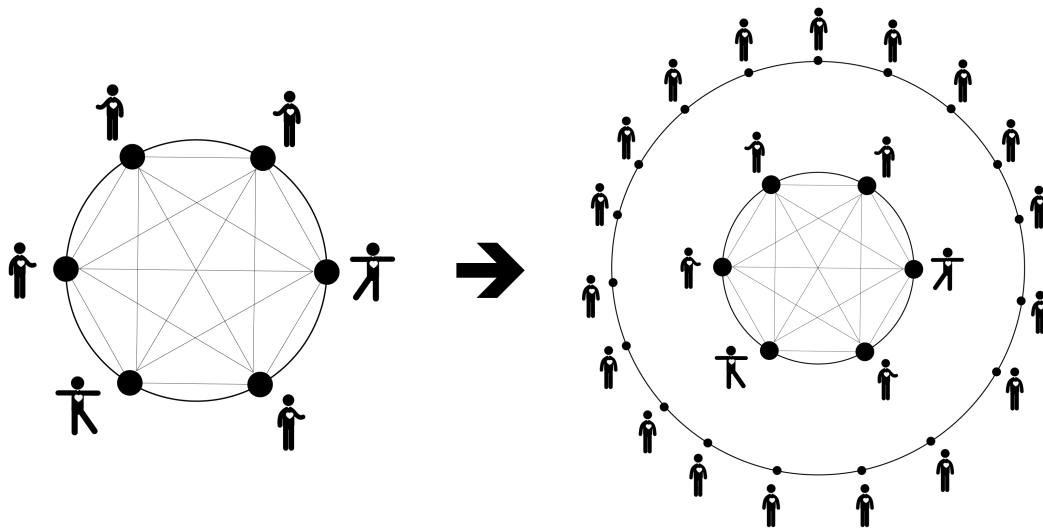


Fig. 3: The show, from multimodal interactions on stage to multimodal interactions with the audience.

Like life, it escapes every instant: just actualized, it has already disappeared in the past. It exists only in the vibration of a moment. It is, therefore, almost impossible to objectify, to freeze and to define once and for all the technical details of its reproduction. Yet its configurations renewed finally little from its origins: a unique place, a common time, a shared action. Well... Like life! But, it is that the gesture that is performed (or, we could say: the gesture that is *made*), necessarily implies the presence of all participants in the same place at the same time. And parameters that make up this shared moment are too numerous and random to be accurately described and reproduced by technology.

So, by the very fact of its multimodality, of its proximity to the experience, is it intended to remain in local network in a world where everyone is potentially ultra-connected globally? If, as I believe, technological objects are mirrors we make to learn

more about ourselves, how can theater appropriate the connected mirror we offer to ourselves today: organic, mobile and constantly changing?

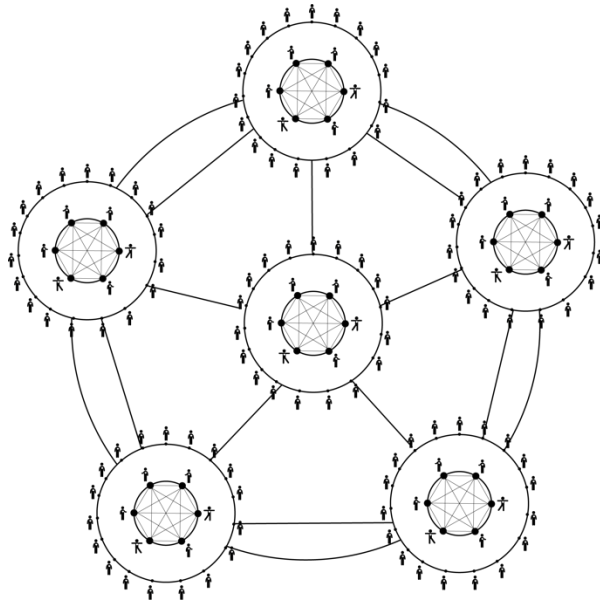


Fig. 4: *Connecting transience, connecting presence.*

By extension, while ways to connect to each other, change very quickly and very deeply, almost daily, how everyone can take over locally and concretely, a global technological territory he doesn't hold the keys of, based on the ephemeral and which never ceases to escape too: the network?

The MaP platform for which theater, as I said, is only one of the inputs, proposes to provide a technical and open answer to this issue. Through local and distant shared experimentation, it does concern the co-production of knowledge and the co-creation of new practices in the service of renewed perceptions. This technical key we propose, obviously raises many other questions: practical, economic, social, and philosophical, and with regard to the arts, on the nature of the artwork itself, as the conditions of its making.

Concretely, the Multicasting art Platform is based, as the name suggests, on the multicast protocol, to develop a hardware and software network that can carry real-time uncompressed video, audio and sensors data, at very high symmetrical bandwidth between several points of the world, to enable multimodal interaction between users. Unlike unicast protocol that we use every day, multicast allows to broadcast the same information to a group of subscribers simultaneously, which has the effect of limiting the number of connections required for the same user, thereby optimizing the bandwidth. This protocol is already widely used but mainly contrived

to continue the broadcast dimension: that is to say an owner-distributor of content to a collection of consumers-tenants, namely one-to-many instead of many-to-many.

To allow a symmetric transmission rate between users, currently we use fiber optic lines made available by national research networks (theoretically public and non-profit) which own international infrastructure. We implement

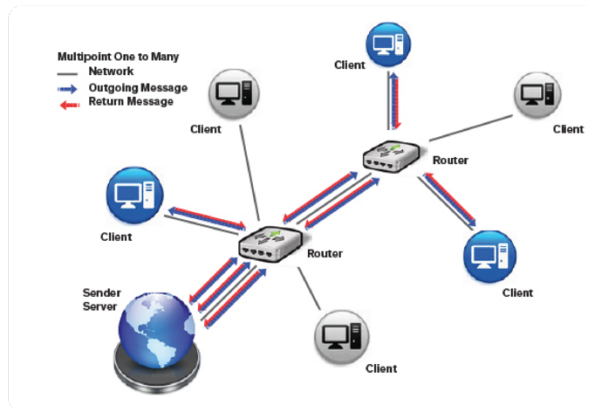


Fig. 5: Multipoint network (Credits: SLIDERS_Lab).

servers that are running a custom overlay of AccessGrid software, able both to relay exchanges and serve as render engine they will share the load of.

Indeed, Pure Data, the famous Open Source visual programming language is implemented on the same server, allowing each participant to improve the tool with specific functions, potentially handled by several persons at the same time. The sound and image mainly, but more generally any type of signal, are therefore processed directly into the mesh, possibly transformed by sensorial data captured from one or other of the participants.

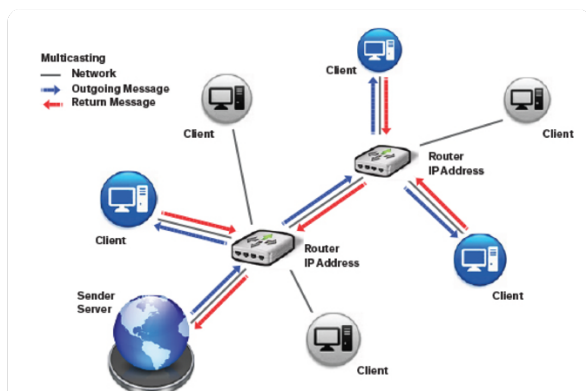


Fig. 6: Multicast network (Credits: SLIDERS_Lab).

It's obviously a lot of data and access to fiber optic lines is for the moment the limiting element of the democratization of the platform, but we bet that with the pace of technological innovations, this limitation will be significantly absorbed very quickly. Certainly,

many of you remember the magic sound of the modem that allowed access to the Internet at 56K. This is not so far. Who would have thought twenty years ago that

today we could browse the Internet, watch and send videos, listen to online music from our mobile phones? We believe that it is today that artists and scientists in

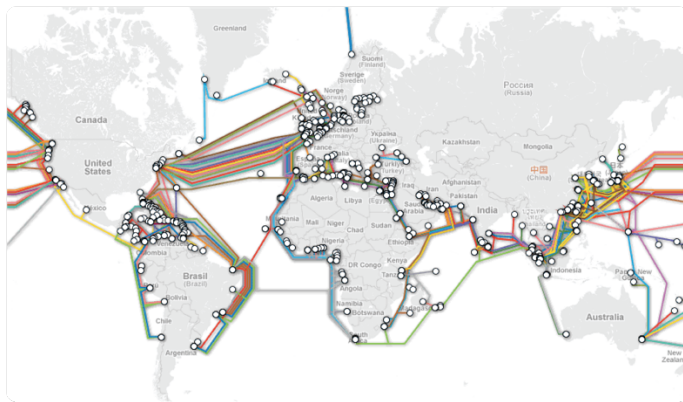


Fig. 7: Undersea cables map (www.submarinecablemap.com).

particular must start working this matter, so that the understanding, tools and access keys are not all exclusively in the hands of manufacturers, but they can be developed by everyone in the future.

In terms of its organization, MaP was from the beginning imagined as a project to deploy collaboratively and horizontally so that the modalities of its development correspond to the shape of the network itself: largely open source, worked by several hands, sharable and shared in real-time.

If the network is a common good, it must be open and transformable collaboratively. If the network is a common good, everyone must be able to appropriate it in its very practice, that is inherently local. This raises several questions, including: What vocabulary, what common grammar do we have to invent to succeed in this object made by multiple hands, from many parts of the world, which dissolve the usual hierarchies? What do we make together? Are we absolutely certain of being together? We address these issues by organizing national and international artistic experimentation workshops, interested above all in the artwork itself, and being done in the flexibility that can invent the next step.

Like a mirror, the artwork prototype tells us at the very moment we're making it, which hardware and software changes we have to make to the platform, to improve it and make it correspond technically to the real challenges of horizontality, co-creation and sharing.

At the stage where is the MaP project, that is at the start of its implementation phase, we can see emerge new meeting spaces in the network itself. These shared spaces are neither here nor there, but emerging from transient events from the interactions among participants, and finally invite a new perception of the exchanges. They force, with regard to the theater, to imagine new modes of presence, new dramaturgy and... new mirrors. But also, new professions and ways to collaborate.

Nothing will ever replace the physical presence. But the *ways of being in the presence of each other* are changing, and we believe that we must appropriate them today collectively through art and science.

This is the very beginning. To be continued. With you ?

Terima kasih.