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Arthost interim report September 2018

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The Arthost project (LIMA 2017-2019) examines how to deal with contemporary works of art that depend on dynamic, digital technology, in particular web-based artworks. Central to this research is the question of how these works can be stored, documented and accessible for the longer term. The development of a method for the preservation of net art is still in its infancy. With this research, LIMA wants to contribute to the development of guidelines for conservation and management of net art, and develop a methodology for preservation. In addition, the aim is to make artists more aware of conservation issues and to involve them in the preservation of their work.

The choice for a 'perishable' medium means that digital artists often have specific ideas about the future and the continuity of their work. Moreover, the artist is often the only one who can provide insight into the creative process of the work and provide technical data that are necessary for future accessibility. Therefore, in addition to its support and service to museums and collections, LIMA emphatically focuses on support and services for artists. The artist is an active participant in the conservation process of his own work. Management and preservation of digital heritage starts with production. The earlier implemented in the process, the more effective the digital sustainability. Documenting and preserving works of art is also not easy for artists, or can be complicated by lack of knowledge, time and resources. That is why LIMA has developed the Artwork Documentation Tool to make artists aware of the problems and to support them in the DIY preservation of their own work.

In addition to the challenges that digital art in general has to deal with (including bit rot, obsolescence of carriers and equipment, compatibility, etc.), a number of additional specific issues need to be taken into account when conserving net art. The disappearance or replacement of plug-ins, system updates, licensing, renewal of domain names, bugs and errors in software and the possibility of hacking and viruses make internet artworks extra vulnerable. It is these kinds of potential changes that not only pose a risk to survival, but also affect, for example, the aesthetics of a work. This requires constant attention from the manager.

The archiving of websites can be done via the technique called harvesting. Here, web pages (including images, design, and downloadable documents) are retrieved from the web server using special software. This harvester approaches the website like a user and 'sees' the website only at the front: on



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the client-side. In the case of server-side archiving, especially the backbone is archived. LIMA focuses on server-side archiving in the first phase of the investigation. The artists provide us with the works and files, so harvesting does not apply to us.



Constant Dullaart, *Waving Ocean*, 2010, courtesy Collection Pieter Sanders and Gabriella Sancisi.

The project investigates a total of 20 web-based works of art, a large part of which were made by Constant Dullaart, with whom LIMA collaborates in this research project. In order to arrive at a methodology and to answer the research question, the following topics are covered:

- Documentation of net art as a strategy. Further development of standards (what documentation is needed?) And workflows. → "biography of the artwork" (exhibition history, concept, installation instructions, certificate of authenticity, etc.)
- Development / adaptation Collection Information System (the current CIS is not designed for dynamic art as a net-art)
- Version management (Gitlab)
- Storage (and virtualisation: setting up a system of 'virtual servers', including: Monitoring and interpreting changes in software.
- Emulation (when will the work be replaced by emulation?) Which version as a source? Who decides? For LIMA it is important to record the authorization for emulation by the artist.
- Development of a workflow for the storage and maintenance of net art, where emulation is an integrated part.
- Checking and monitoring change. How and what tools? How to interpret change then?



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-The role of the artist in the conservation process. (What does the artist has to deliver?) To what extent is the artist responsible for the preservation and management of his work, for example for documentation and maintenance of his website? When does LIMA take this over? What is the term of maintenance? Authorization emulation?). Including the development of contracts between LIMA and artist, and between artist and collector



Constant Dullaart, *The Revolving Internet*, 2010.

The components documentation, storage (a virtual server per work), workflow and role of the artist are clarified until now. In addition, it appeared that in order to be able to guarantee sustainability, the domain name and source code should preferably be transferred to LIMA, so nobody will forget to extend the domain name and, in case of total dysfunction, the work may be re-executed by using the source code and documentation. The websites, associated files, source codes, video documentation and domain names have been transferred. In collaboration with the artists and owners, agreements are made about matters such as 'When is emulation used, when (online) emulation is no longer possible, does documentation then take the place of the artwork?' In addition, four possible scenarios have been developed for:

- repair in case of dysfunction

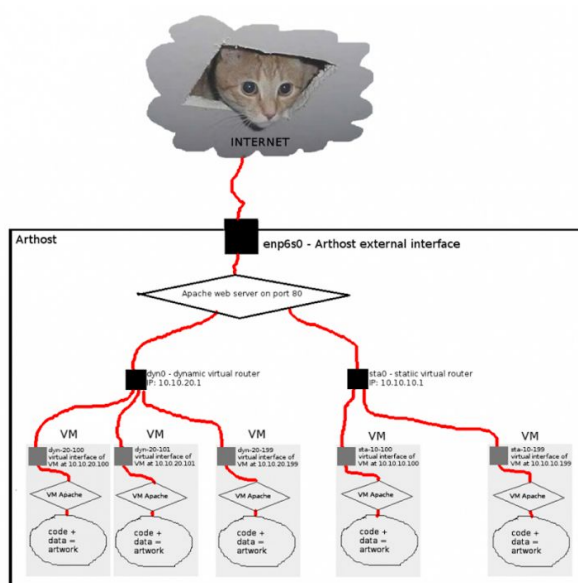


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- online emulation
- offline emulation
- online documentation.

For the contracts, duration 10 years, the escrow model is taken as an example. For the emulation (from the client-side) and the implementation thereof in our Collection Information System and repository workflow, a collaboration has started with Rhizome. They developed oldweb.today and Webrecorder for the archiving of websites. Both promising but not yet applicable for what LIMA has in mind with web archiving.

Arthost is built on top of **libvirt** and **KVM**.
The system consists of several bash scripts to automate VM creation and management, build by gnd/
Libvirt is an open-source virtualization API that supports several virtualization approaches: KVM, Xen, LXC.
KVM (Kernel-based Virtual Machine) is a virtualization technology that relies on hardware on-CPU virtualization instructions and is part of the Linux kernel.



Storage (a virtual server per work), image by Wiel Seuskens.

We started with the question 'Which characteristics of the work are decisive for change? The answer to this question is probably the most complex challenge of the project.

More to come.