

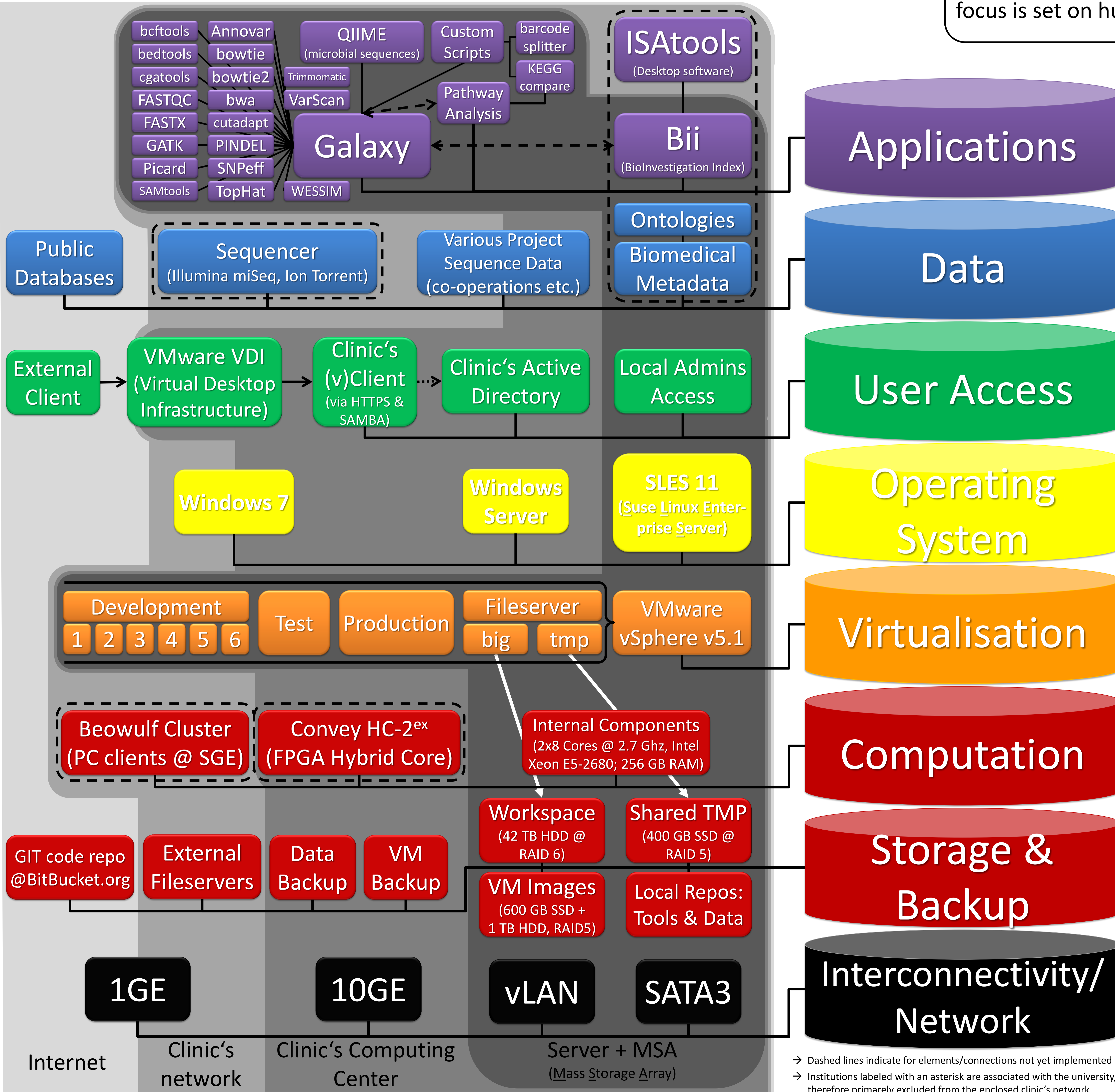
# The Munich NGS-FabLab – A glimpse on an IT infrastructure for medical sequence data



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**The NGS-FabLab** is the first multi-institutional IT infrastructure for research at the university hospital and medical faculty of the LMU (which are in fact two juristic persons) in Munich, supporting molecular biomedical and clinical researchers from basic research up to experimental diagnostics and translational studies. Also due to data security laws a focus is set on human-derived samples, but not restricted to (mice, microbes, ...).



NGS Admin Round-table (NGS-ART)

## Core Features

- Conformity with the hospital's central IT (MIT) infrastructure:** usage of SLES, VMware, local Access Directory, integration of the server into their computing center and lots of **conversation**.
- Conformity with data security policy:** accessible only from the internal network or via virtual desktop (both data security approved); approval of the NGS-FabLab itself is currently pending.
- Modularity:** Every VM can be sourced out to unload the concept server. In principle, all connections run via **network** protocols or **NFS**. This implies high **scalability**.
- Development cycle:** Virtualization allows developments on a **system scale** (creation & **resetting** of VM images), rapidly providing an environment as close as possible to the current production machine. A GIT code repository is located at **Bitbucket.org**, while mass data (third-party software packages, test data etc.) is stored in a **local repo** on the file server.
- Setup script:** The NGS-FabLab can be setup completely within ca. 15 min. by providing an **.ini** file to our shell setup script within a blank SLES installation. Necessary downloads will redirect to Bitbucket.org, the local repository or specific URLs, respectively. The **.ini** file can be created via a **Galaxy-based web form**, providing available options and some help.
- Clone instances:** the shell script allows relatively easy setup of the structure to further machines in other institutions, which may be located in separate networks (→ **data property**). Such a clone is currently **in preparation** for the partnering Technical University of Munich (TUM).
- Teaching & Training:** One VM is running an instance with test data and some course materials (test data, tutorials) in order to give courses for users or provide self-learning possibilities on the local system.
- NGS data access by biomedical ordering:** Sequences are browsable by Bii, an ontology-based framework for dataset management (currently in development).

**The NGS-ART** is an open round-table of the FabLab server admins and a forum for all interested computer scientists, admins, developers, bioinformaticians, biologists, physicians, ... working on NGS data in the biomedical or associated scientific fields.

→ Dashed lines indicate for elements/connections not yet implemented  
 → Institutions labeled with an asterisk are associated with the university, therefore primarily excluded from the enclosed clinic's network