VMs implementation for the Fermi masterclass in Bari

E. Bissaldi, F. de Palma, F. Gargano, F. Giannuzzi, F. Loparco, S. Nicotri

INFN Bari

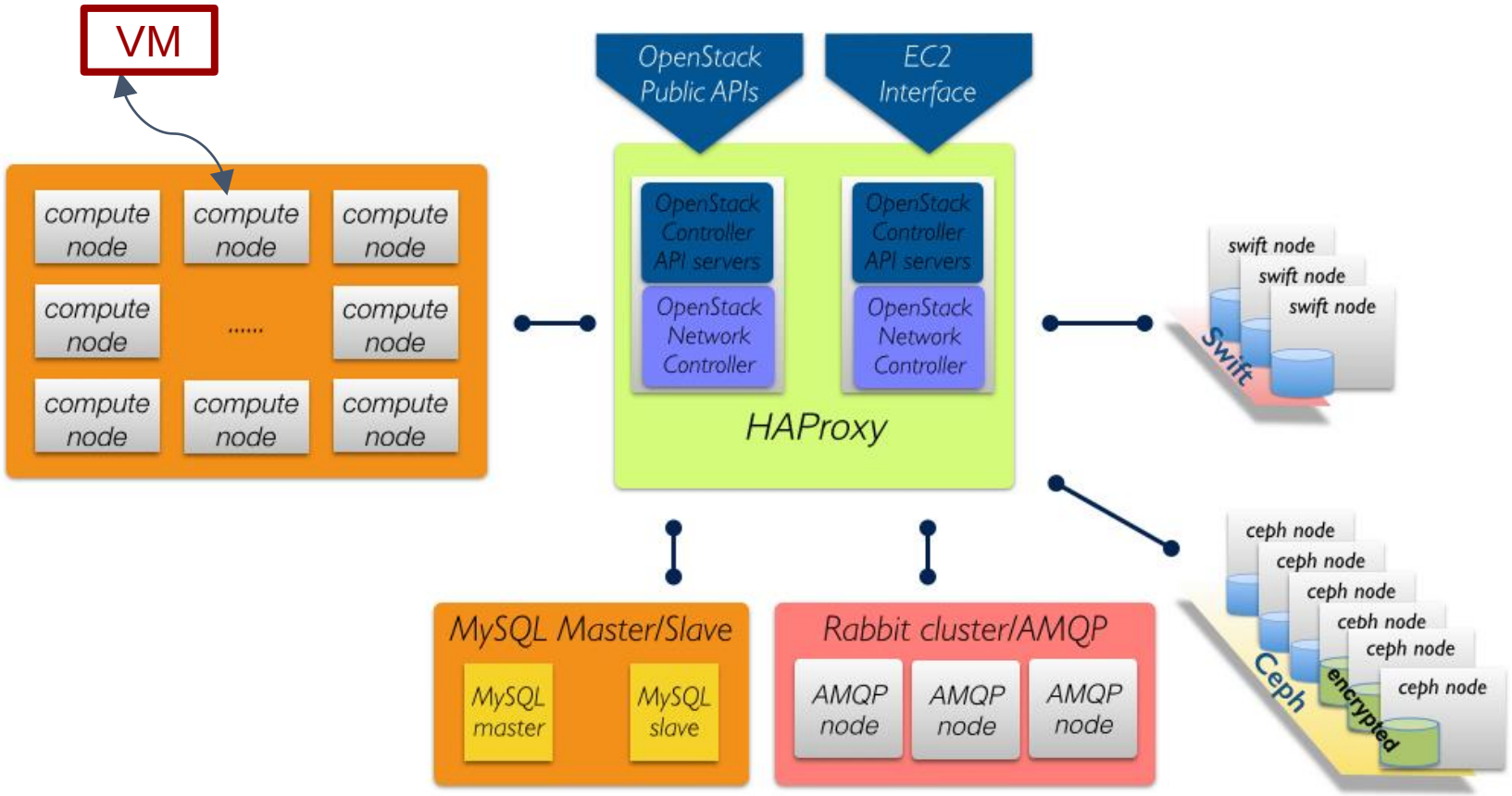
The INFN Bari / UNIBA IaaS Cloud Platform

The IaaS (Infrastructure as a Service) cloud platform **Cloud@ReCaS-Bari**, hosted in the **ReCaS Bari** data centre, provides computing resources following the cloud paradigm

Its features are:

- 1300 CPU core
- 5 TB of RAM
- 10 Gbit/s network
- Layer 2 isolated VLAN with NAT
- Evolved Firewall
- 180 TB of replica 3 storage
- Based on open source software (OpenStack)
- Modular
- Highly Available (HA) services

Cloud@ReCaS-Bari: physical architecture



https://www.recas-bari.it/index.php/en/

Virtual Machines

Computing resources are **VIRTUALISED** → servers (Virtual Machines, VM) and storage are created and used only when needed.

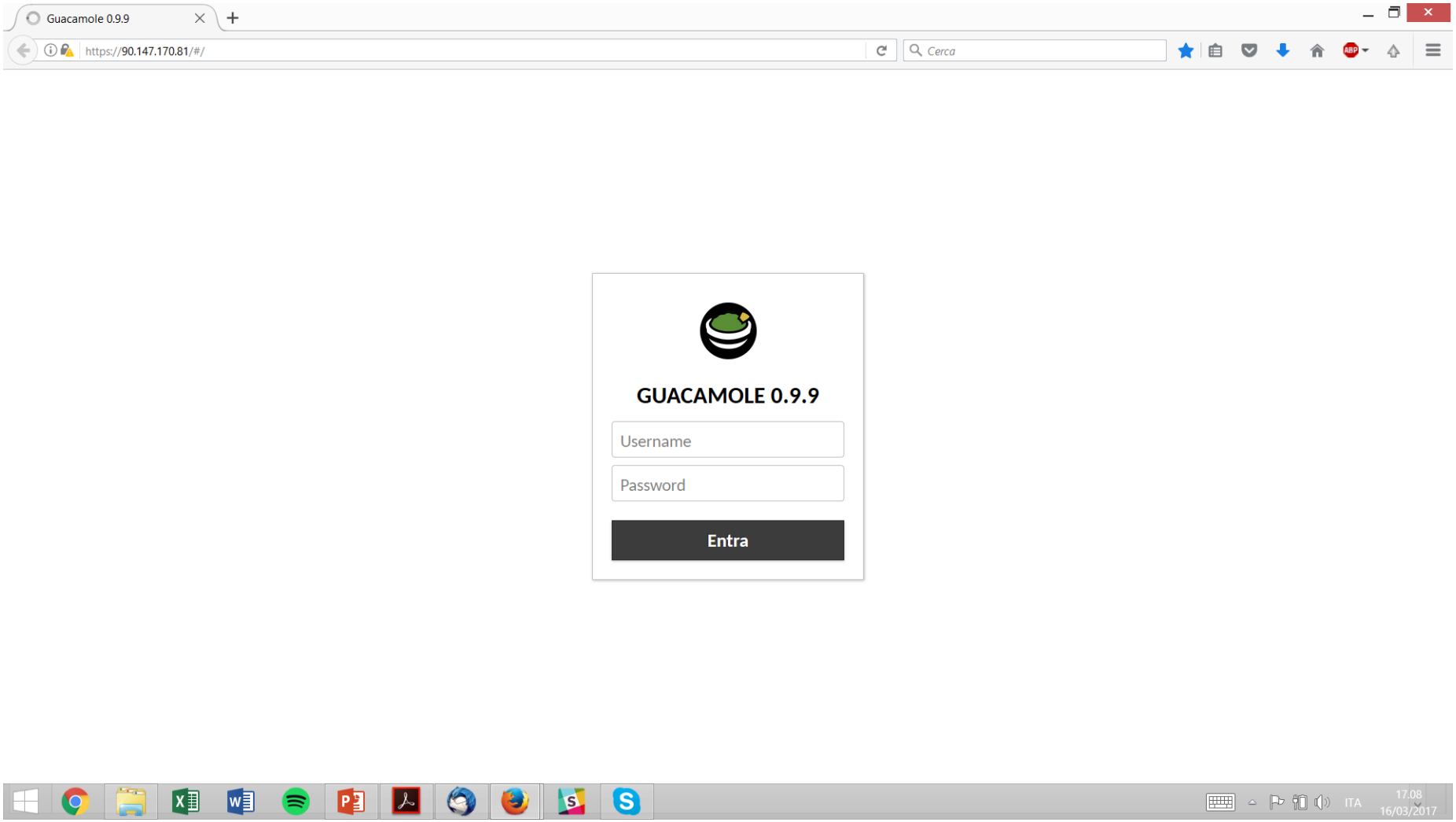
Virtual Machines (VM) are similar to standard hardware servers:

- They use familiar operating systems (OS), as Linux, Windows, etc.
- They can execute any software compatible with the OS

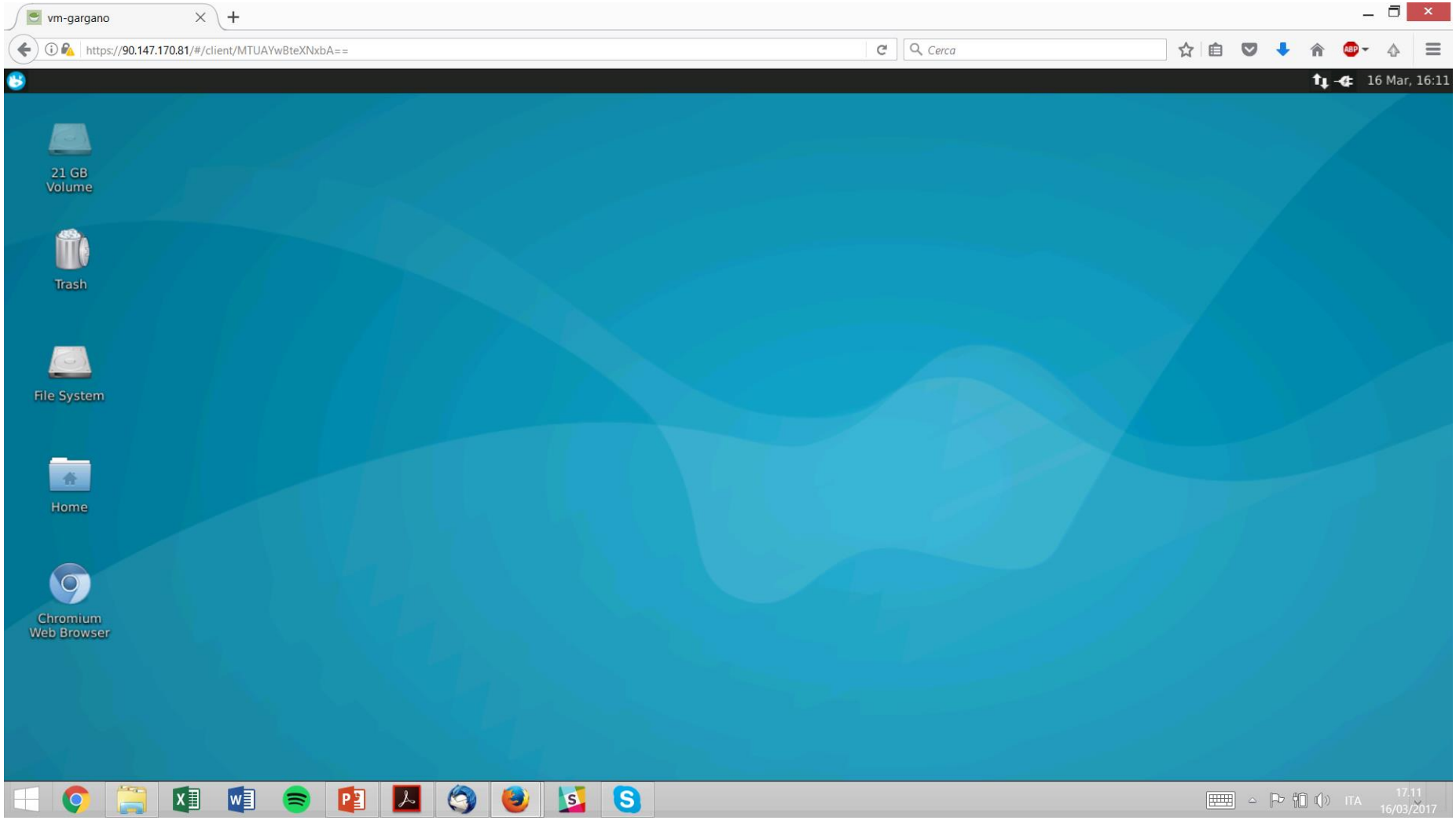
… but the hardware features (quantity of RAM, number of CPU cores, storage) are **VIRTUALISED**

VMs can be accessed through standard protocols (SSH, RDP, etc), as normal remote servers

Every student can login with his own credential in a browser running on every OS



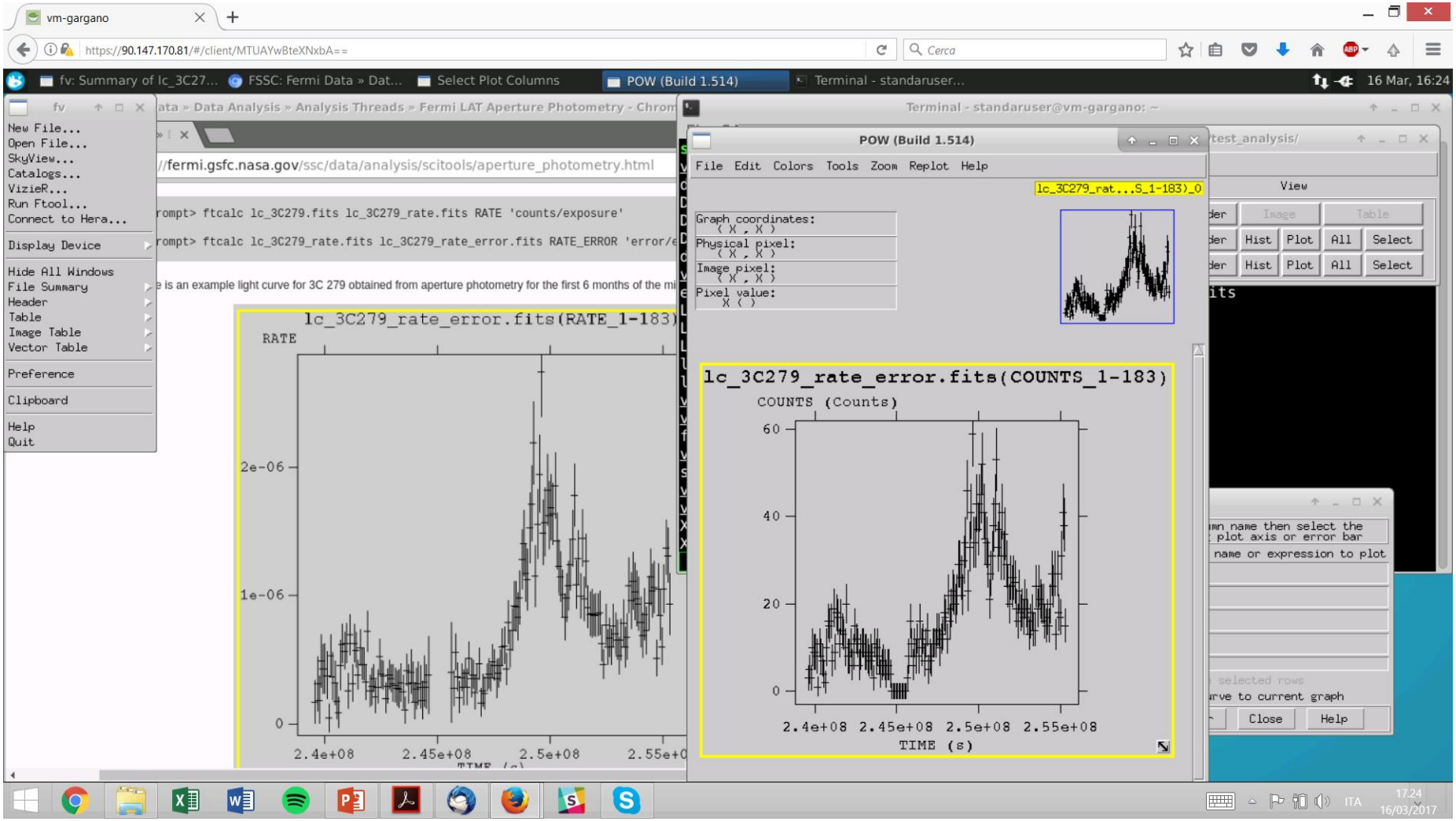
After the login you have Ubuntu 16.4 running in a tab of your browser



Scientific Software installed

- Ds9
- Fv
- Public Science tools from FSSC (binary version)
- Ftools from heasarc (binary version)
- Astropy

Students can easily replicate the aperture photometry tutorial on the FSSC.



Comparing results

- Each student will analyze an interval of few days of data. He/she will report his/her spectral result in a google spreadsheet.
- With all this information we will create a local light curve and a general light curve of the source.
- Each student will also produce and compare counts maps. At the end we will try to create an animated gif.

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