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# Easy Development and Integration of Science Gateways with Vine Toolkit in production.

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The advanced web-based graphic and multimedia oriented user interfaces (GUIs) designed for scientists and engineers could change the way users collaborate, share computing experiments and data, and work together to solve day-to-day problems. Moreover, future science and engineering gateways will influence the way users will not only access their data, but also control and monitor their demanding computing simulations using the Internet. To allow users to interact remotely with clusters, supercomputers and large-scale computing environments in a more interactive and visual manner, we present example Science Gateways for different scientific applications used by communities in the PL-Grid infrastructure. The PL-Grid portal has been successfully integrated with Vine Toolkit it offers now users a set of gateways connected to all production grid sites in Poland. In a nutshell, Vine Toolkit is a modular, extensible and easy-to-use tool that can be used as a graphical web front-end for remote job and data management. It also offers high-level Application Programming Interface (API) for various applications, visualization components and building blocks to allow interoperability between HPC and grid technologies, such as QosCosGrid, gLite, Unicore, iRODS, etc. It supports Adobe Flex and BlazeDS technologies to help developers quickly prototype and build advanced and rich web applications similar to many stand-alone GUIs. Additionally, Vine Toolkit has been integrated with well-known open source web frameworks, such as Liferay and Gridsphere. In this presentation, we briefly describe new technological solutions relevant to advanced scientific and engineering portals driven by various requirements defined by experts in chemistry, molecular physics, nanotechnology and nanomechanics.

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