7. Data management and meta-scheduling are two important aspects of grid computing.   
  
Data management refers to the storage, organization, and retrieval of data in a distributed computing environment. In a grid computing environment, data may be stored in multiple locations, and may need to be accessed and manipulated by multiple users and applications. Therefore, effective data management is crucial for ensuring efficient and secure data access and sharing.  
  
Meta-scheduling, on the other hand, refers to the orchestration of computational tasks across multiple distributed resources, such as computing clusters, grids, and clouds. Meta-scheduling systems schedule and manage the execution of jobs that require access to distributed resources, while also optimizing the utilization of those resources.  
  
GridWay is an open-source meta-scheduling system that provides a framework for managing jobs on a grid computing environment. It supports multiple job submission interfaces, including command-line, web-based, and programmatic interfaces, and allows users to manage jobs across multiple computing platforms and resource managers. GridWay also provides advanced scheduling policies, such as backfilling, gang scheduling, and resource overbooking, to optimize resource utilization and improve job throughput.  
  
In addition to its meta-scheduling capabilities, GridWay also provides support for data management, including data staging and data replication. This allows users to manage their data efficiently and effectively, ensuring that it is available when and where it is needed for computational tasks.

8. Portals and friendly interfaces for job submission and control are important components of grid computing systems, as they provide users with an easy-to-use interface for accessing and controlling resources on a grid. Here are some examples of portals and friendly interfaces for job submission and control:  
  
1. Genius: Genius is a web-based portal that provides a user-friendly interface for submitting, monitoring, and managing jobs on a grid. It supports a wide range of job submission interfaces, including command-line, web-based, and programmatic interfaces, and allows users to manage jobs across multiple computing platforms and resource managers.  
  
2. UCLA Grid Portal: The UCLA Grid Portal is a web-based portal that provides a user-friendly interface for submitting and monitoring jobs on a grid. It supports job submission for a variety of scientific applications, including molecular dynamics simulations, bioinformatics, and climate modeling.  
  
3. GridSphere: GridSphere is an open-source portal framework that provides a customizable web-based interface for accessing and controlling grid resources. It supports job submission and monitoring, as well as data management and collaboration.  
  
4. PGrade: PGrade is a graphical user interface (GUI) for job submission and control on a grid. It provides a drag-and-drop interface for creating and submitting complex computational workflows, and supports a range of resource managers and job submission interfaces.  
  
These portals and friendly interfaces provide users with an easy-to-use interface for accessing and controlling grid resources, allowing them to focus on their scientific research instead of the complex details of grid computing.

9. Security is a critical concern in grid computing systems, as grids typically involve sharing resources across multiple organizations and domains. Here are two examples of security mechanisms used in grids:  
  
1. SLCS: SLCS (Simple Lightweight Certificate Service) is a lightweight certificate authority designed for use in grid computing environments. It provides a simple and secure way to issue and manage digital certificates, which are used to authenticate users and services in a grid. SLCS is designed to be easy to deploy and manage, and it supports integration with existing grid security infrastructure.  
  
2. Shibboleth: Shibboleth is an open-source software package that provides federated identity management for web applications. It allows users to authenticate themselves once with their home organization, and then access multiple web applications without having to authenticate themselves again. Shibboleth is often used in grid computing environments to provide secure access to grid resources across multiple organizations and domains.  
  
Both SLCS and Shibboleth provide mechanisms for secure authentication and authorization in grid computing environments, allowing users to access grid resources with confidence in the security of their data and applications.