to more accurately gauge how test applications will perform in production.

Some organizations implement more than two environments, as shown in Figure 1.9. If special care is needed for complex application development projects, additional levels of isolated testing may need to occur. For example, a unit test environment may exist for individual program development, then an integration testing environment to ensure that new programs work together, or that new programs work correctly with existing programs. A quality assurance (QA) environment may need to be established to perform rigorous testing against new and modified programs before they are migrated to the production environment.
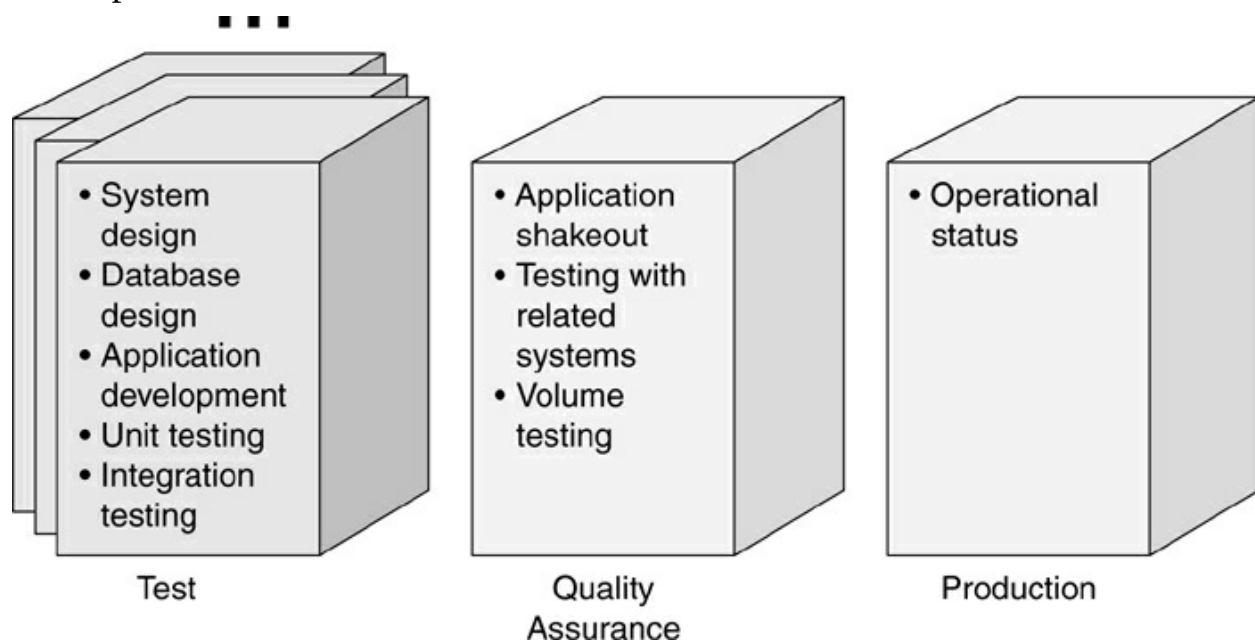

Figure 1.9. Establishing multiple database environments

A QA environment may be needed to perform rigorous testing against new and modified programs before they are migrated.

The Impact of Newer Technology on DBA

The DBA is at the center of the action whenever new ways of doing business and new technologies are introduced to the organization. Data is at the heart of any application, and most new technology impacts data as it is adopted by application developers. Indeed, data is the lifeblood of modern business; the database houses the data; and the DBA is the expert who understands database technology—and in particular, how databases can be integrated with