Component 1:

Performance is one of the critical quality attributes to a big data platform or infrastructure because the platform should process a huge amount of data during a very short time and it must calculate the result timely. If the platform is blocked for a long time, it will affect the user or requester’s experience a lot. All systems have performance requirements, even if they are not explicitly expressed. Processing time and blocked time are two basic contributors to the response time. Interoperability is also a quality attributes which is critical to a big data platform. Interoperability is about the degree to which two or more systems can usefully exchange meaningful information via interfaces in a particular context. A big data platform cannot only use one system to process a huge amount of data, so it must exchange information among two or more systems. One system should be discovered by other systems when consumer wants to use it to process some particular data. Modifiability is a quality attribute which is critical to most of software system because the requirement of software system cannot be static and it is changing all the time. In a development of a big data platform, the change and the cost in time or money of making a change, including the extent to which this modifiability affects other functions or quality attributes should be considered.

Security should be considered as a critical quality attribute because a big data platform containing a huge amount of data must keep its data safe and make sure its data cannot be stolen by attackers. The data in a big data platform is very valuable and it may help the person who will make a strategic decision. If the data are stolen by attackers, the trade secrets will be revealed at same time. Another critical quality attribute is usability. Usability is concerned with how easy it is for user to accomplish a desired task and the kind of user support the system provides.

Component 2:

To improve the performance,

Component 3:

I use QINIU cloud as example to illustrate how the architectural strategies and technical tactics are used and combined together to tackle a set of specific quality attributes, which interrelate or even intertwind together.七牛云提供四种产品和服务，分别为对象存储，融合CDN，直播云和数据处理。

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七牛数据处理平台针对海量数据，提供零运维、高可用、高性能的数据处理服务，日处理数近百亿次。除了提供基础数据处理，还基于容器技术打造了易扩展、易部署、高自由度的自定义数据处理接入平台，与七牛数据处理服务无缝兼容使用。图片处理, 各种 PGC、UGC 图片共享应用或平台。例如，社交平台图片分享后，用户需要在 PC 端、平板和手机端查看图片，则可以使用图片缩放功能来适应不同的设备；为了防止别人盗用原图，用户可以使用原图保护、防盗链、图片水印或文字水印等功能；各图像 APP 里的滤镜功能则可以打包使用调整图片曲线、色调和饱和度等功能；摄影爱好者应用则可以使用图片接口信息功能查看各种数码相机的摄影信息等。音视频处理, PGC 和 UGC 音频、视频网站或应用。例如，在线教育、媒体资讯、游戏娱乐等平台的视频分发，就需要转码成相应的格式，以适应不同的终端、网络带宽或用户需求；同样需要转码成更小的格式以节省分发的流量；视频水印功能更能宣传品牌价值和保护视频版权。音频、短视频分享 APP 同样需要各种音视频处理功能。鉴黄、广告等特殊处理,移动社交类、UGC 类平台和 APP。在这类应用中，用户经常会上传大量的图片，为了打造健康的社交环境，减少运营风险，平台需要高效准确地鉴别出各种涉黄、广告和涉暴恐图片。使用七牛功能丰富的第三方数据处理服务就可以满足需求了。