- A *risk* *is a potentially problematic architectural decision.*
- *Non-risks* *are good architectural decisions that are* frequently implicit in the architecture.
- A *sensitivity point* *is a property of one or more components* (and/or component relationships) that is critical for achieving a particular quality attribute response.
- A *tradeoff point* *is a property that affects more than one* attribute and is a sensitivity point for more than one attribute.

Risks, Tradeoffs, Sensitivities, and Non-Risks↵

（1）、risk（风险点）:可能引起风险的架构决策，通过不断分析风险，架构师可以解决架构中的缺陷，采取措施降低架构中风险发生的可能。↵

Eg: 在三层体系结构的第二层中编写业务逻辑模块的规则没有明确阐述。这可能导致功能的重复，从而影响第三层的可修改性。↵

（2）、non-risk（非风险点）：不存在风险的良好的架构决策，通常隐含在架构中。↵

Eg：假设消息到达率为每秒一次，处理时间小于 30 ms，并且存在一个更高优先级的进程，那么 1 秒的软截止时间似乎是合理的↵

（3）、sensetivities point（敏感点）：一个或多个组件所具有的属性，对一个特定质量属性响应的影响。↵多个属性影响一个QA

Eg：维护一个系统所需的平均人日数可能对其通信协议和文件格式的封装程度很敏感↵

（4）、tradeoff point（权衡点）： 权衡点是一个影响多个质量属性响应的属性，是多个质量属性的敏感点。↵ 一个属性影响多个QA

Eg：更改加密级别可能会对安全性和性能产生重大影响↵

日期: /

- **Descriptions of architecture evaluation**

a) "although the underlying(底层) framework of this system is good and stable, rules for writing business logic tier of your 3-tier style are not clearly articulated（说明）. This could result in replication of functionality thereby compromising modifiability of the third tier."

b) "Changing the timing scheme from a harmonic（谐波） framework to a non-harmonic framework would be easy, but due to implied timing dependencies, there would impact far reaching impacts（极大地影响） to other modules."

c) "In order to achieve the required level of performance in the discrete event generation component, assembly language had to be used thereby（因此） reducing the portability of this component."

d) "Assuming message arrival rates of once per second, a processing time of less than 30ms, and the existence of one higher priority process, a 1 second soft deadline seems reasonable."

- **Identify and record risks and non-risks, sensitivity points and tradeoffs is an important task in architecture evaluation. Please describe the definitions of risk, non-risk, sensitivity point and tradeoffs and then read the following descriptions and point out each description is a risks, non-risks, sensitivity points or tradeoffs.**
  - ***a) "Changing the way of login could have a significant impact on both security and performance.***
  - **b) *"Rules for 'deposit money' business process are not clearly articulated. This could result in replication of functionality thereby compromising modifiability of the third tier."***
  - ***c) "The average number of person-days of effort it takes to maintain a system might be sensitive to the degree of encapsulation of its communication protocols and file formats.***
  - ***d) "Assuming message arrival rates of once per second, a processing time of less than 30ms, and the existence of one higher priority process, a 1 second soft deadline seems reasonable."***

- **Descriptions of architecture evaluation**

  a) There is no way of detecting the "live" failure of a critical component. r

  b) The number of simultaneous database clients will affect the number of transaction a database can process per second. S

  c) Changing the level of encryption could have a significant impact on both security and performance. t

  d) "Assuming message arrival rates of once per second, a processing time of less than 30ms, and the existence of one higher priority process, a 1 second soft deadline seems reasonable." non-r

  e) "Rules for 'calculate tax rate' business process are not clearly articulated. This could result in replication of functionality thereby compromising (损害) modifiability of the third tier." risk.

  f) "The level of confidentiality in a virtual private network might be sensitive to the number of bits of encryption." S

(a) risk: 因为架构中存在一个关键组件无法检测其失败的风险.

(b) sensitivities point: 因为大量数据库用户判断行为一个属性会影响数据库中每秒的执行性能

(c) trade off: 同时对2个方面影响

(d) non-risk

(e) risk

(f) sensitivities