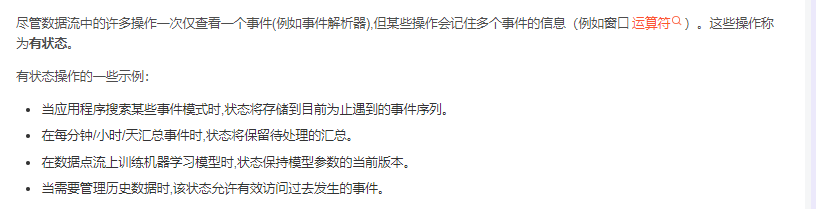
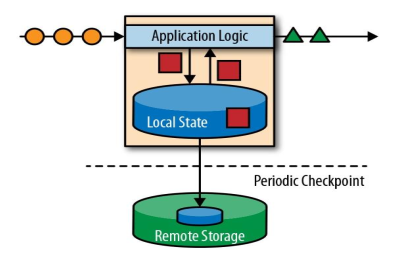
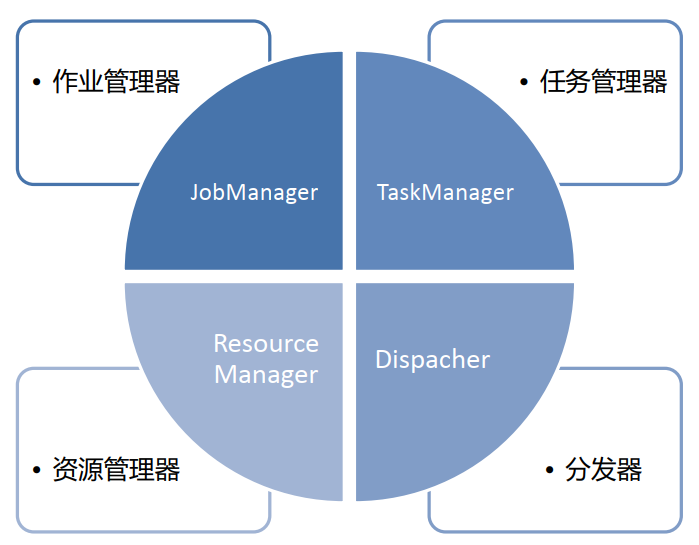
## Flink简介+Flink运行架构

1. **Flink有状态的流式处理？**

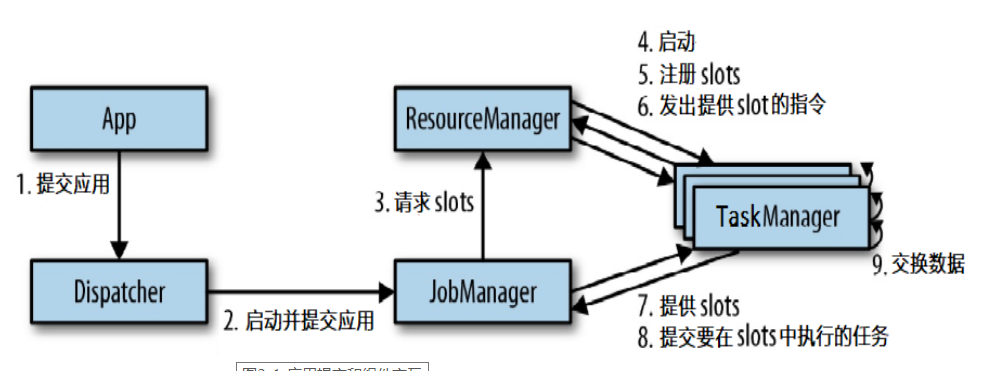




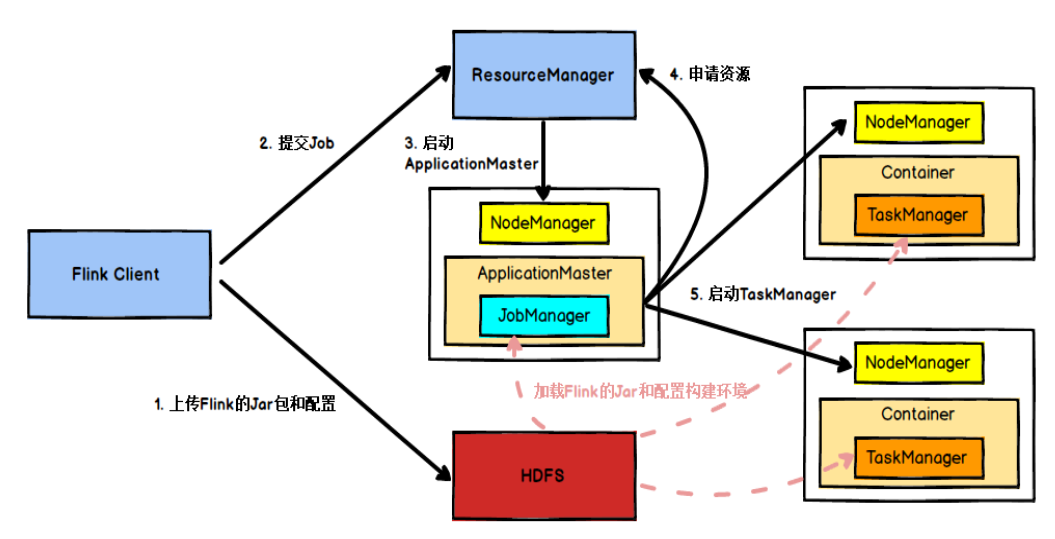
1. **Flink运行时的组件**



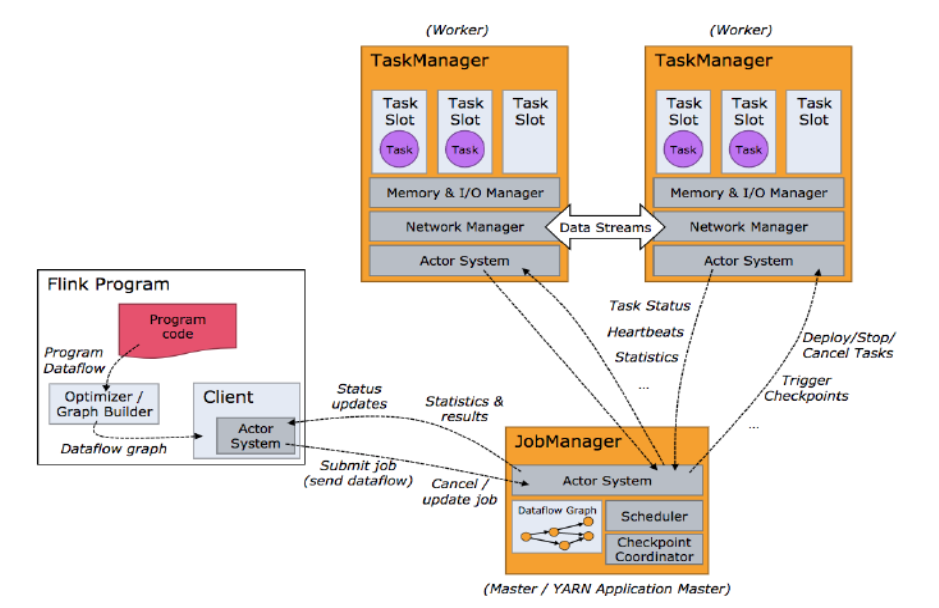
1. Jm：领导
2. Tm：干活的
3. Rm：管理资源的
4. Dispatcher：中间商
5. **任务提交流程**



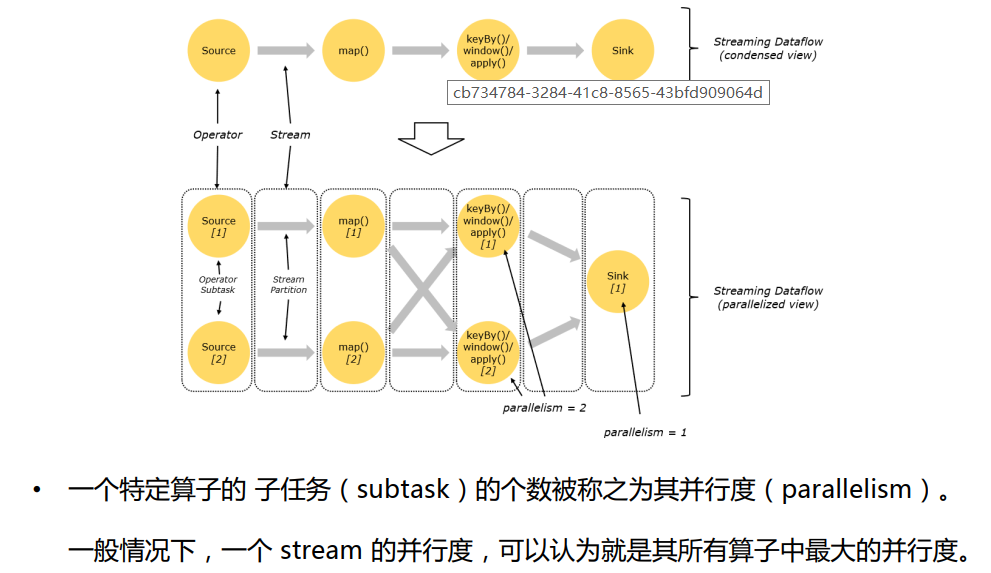
1. **任务提交流程yarn**



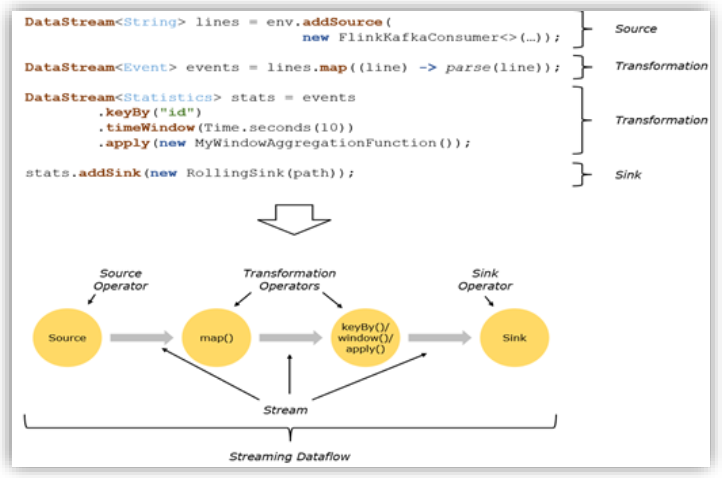
1. **任务调度原理**



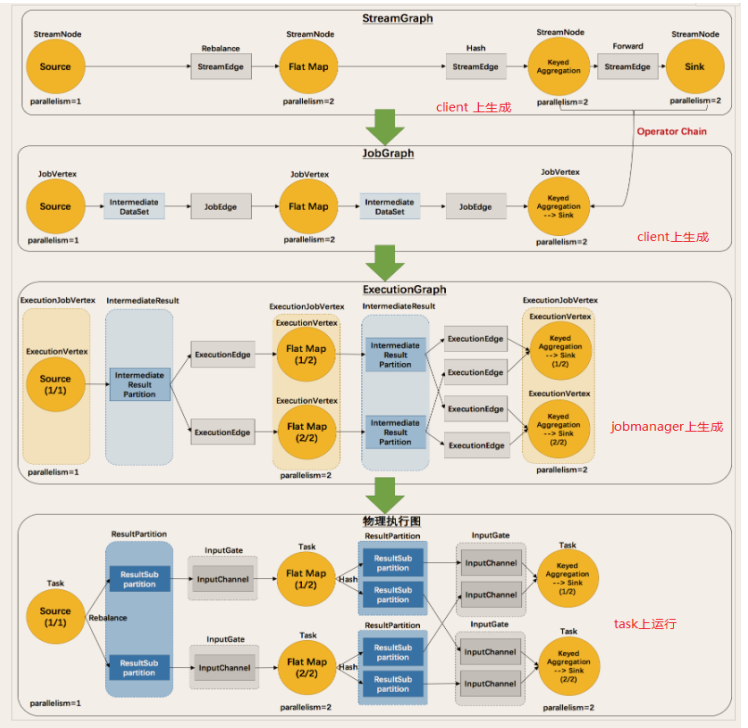
1. **并行度**



1. **程序与数据流**

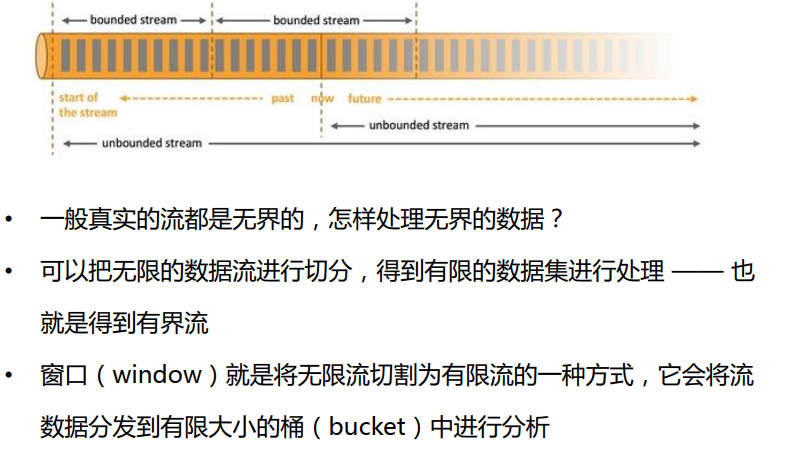


1. **执行图转换**

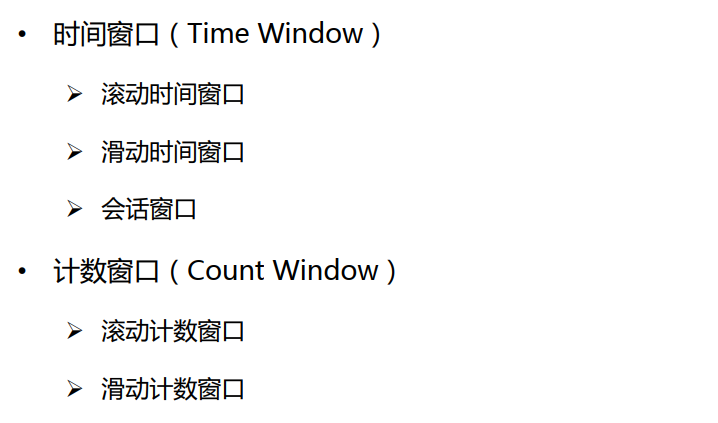


## Flink window API

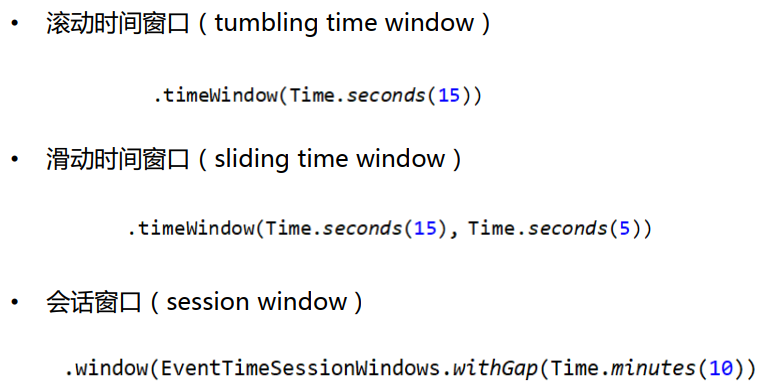
1. **窗口的概念？**

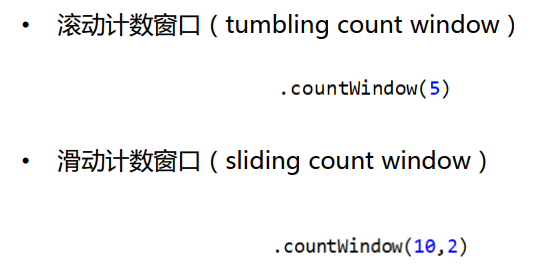


1. **Window类型**

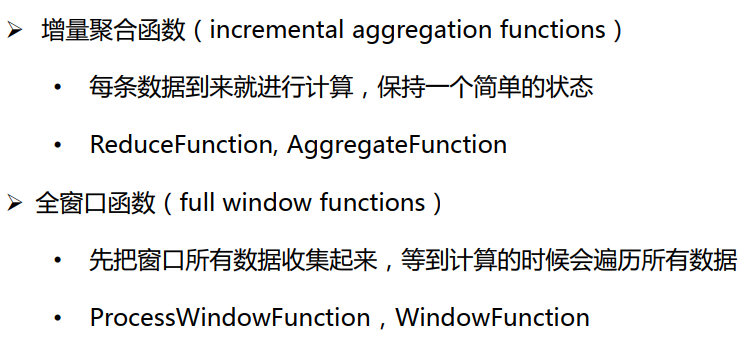


1. **Window API**

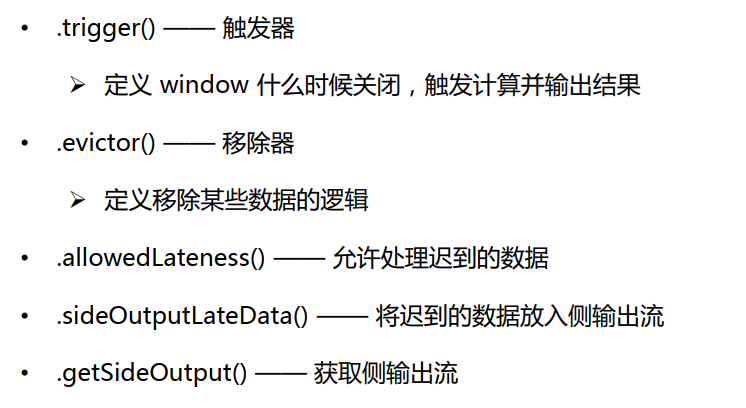




1. **窗口函数**

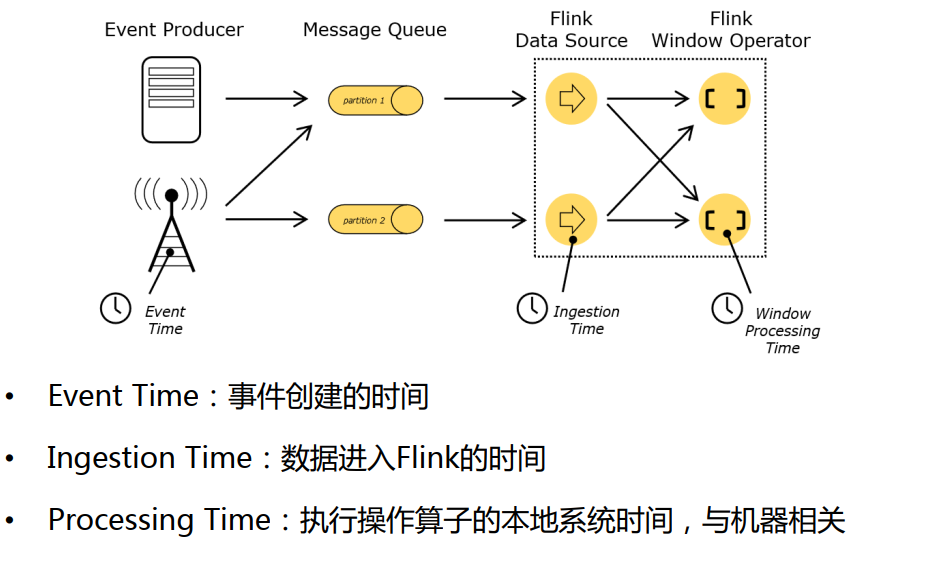


1. **其他可选api**

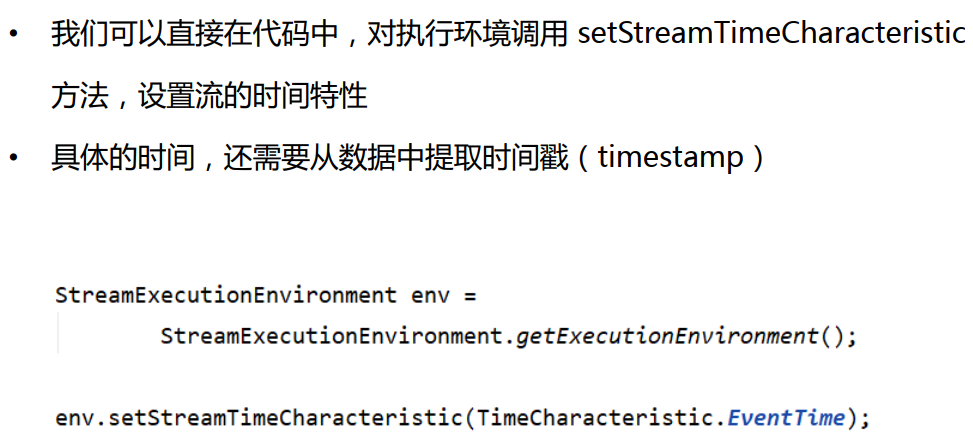


## Flink中的时间语义和watermark

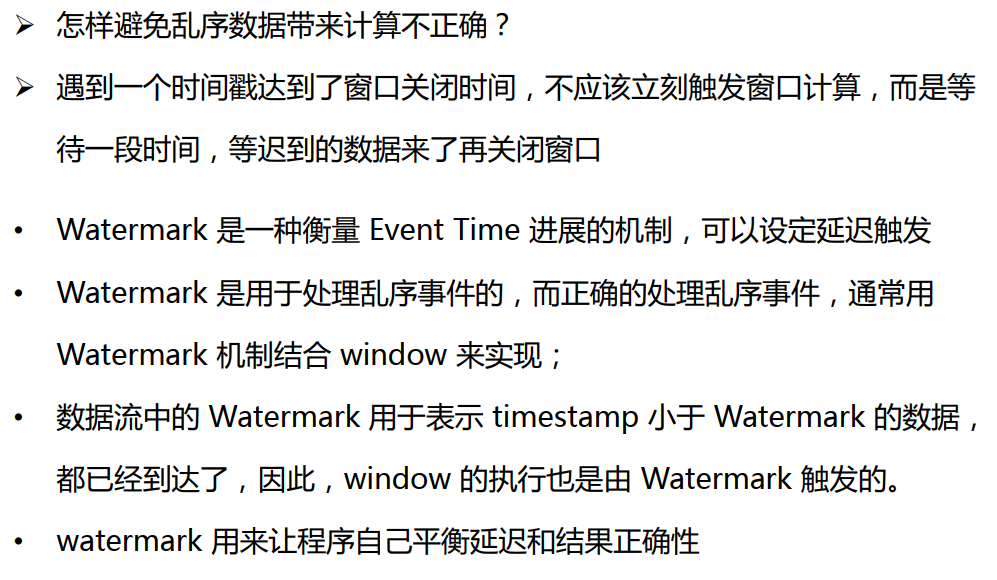
1. **Flink当中的时间语义**



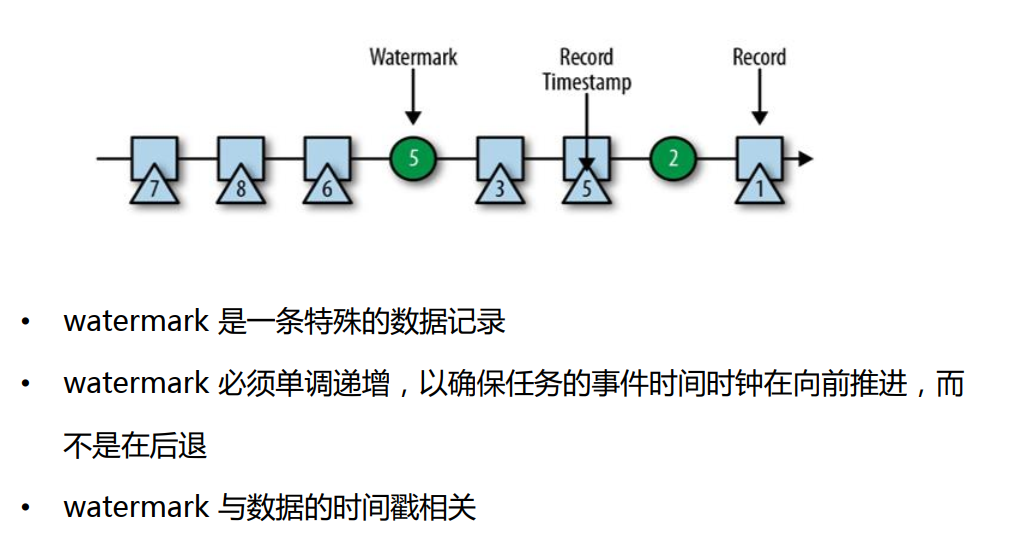
1. **代码中设置时间语义**



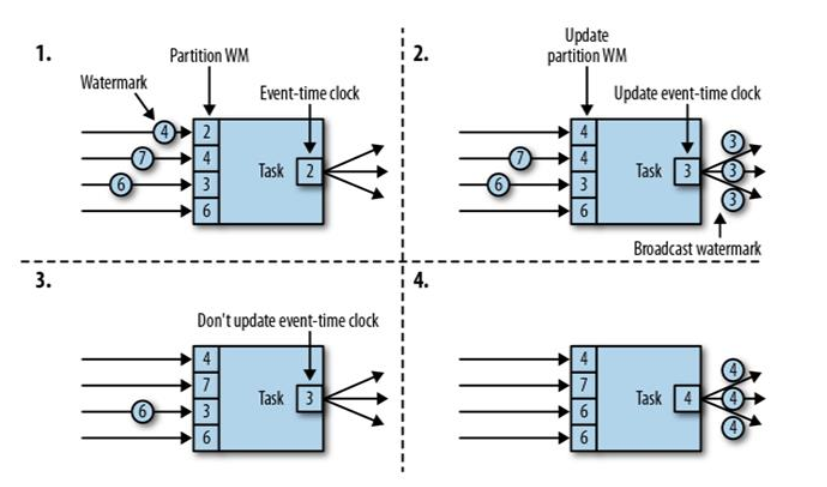
1. **水位线(WaterMark)**



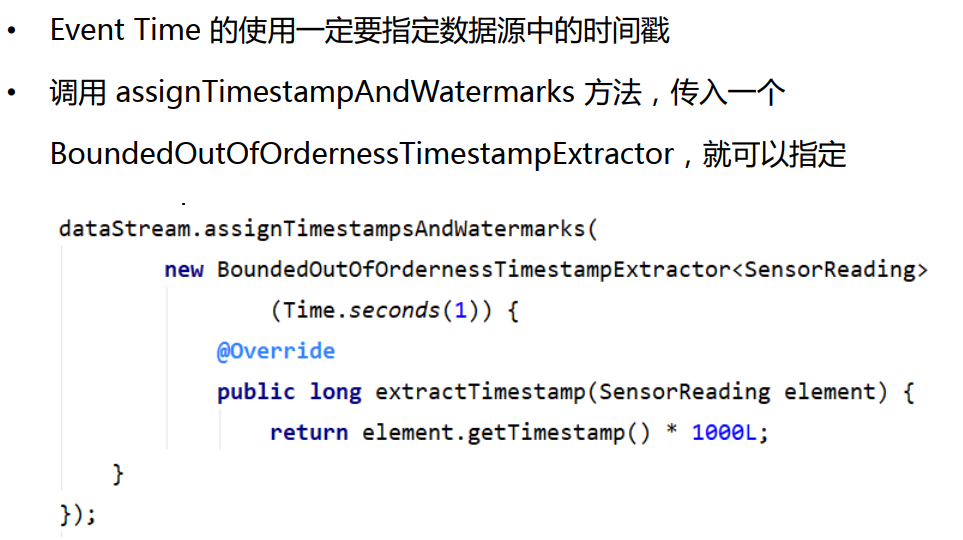
1. **Watermark的特点**



1. **Watermark的传递**

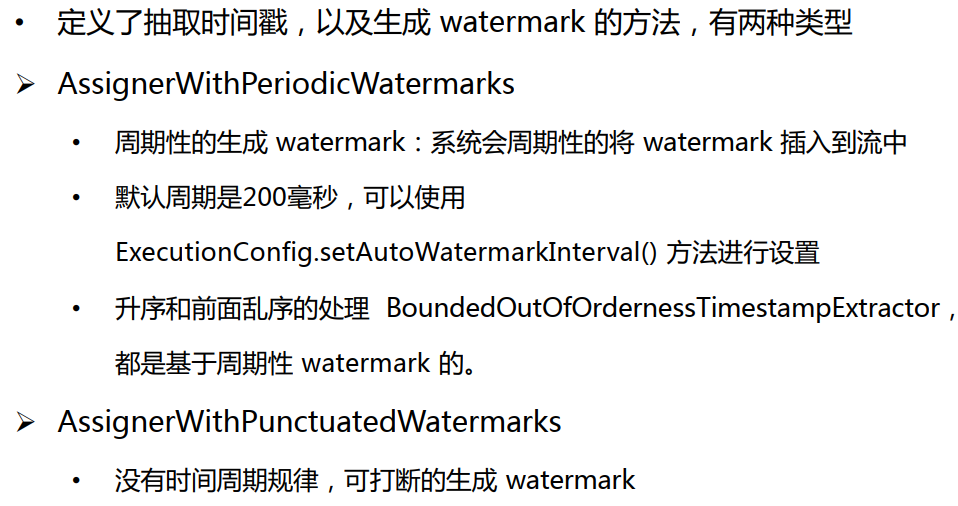


1. **代码加入watermaker**



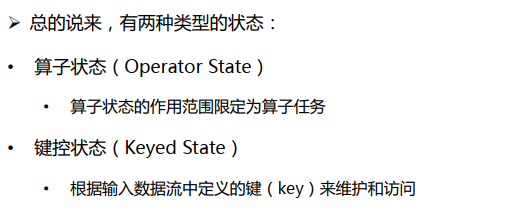


1. TimestampAssigner

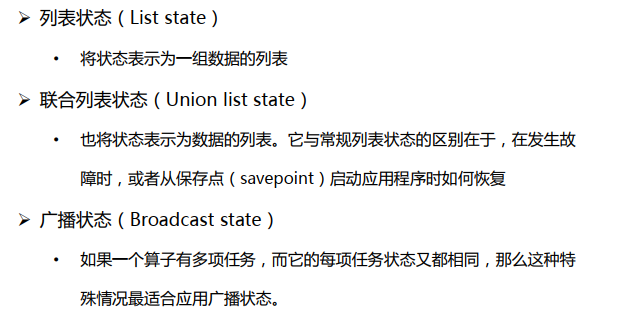


## Flink状态管理

1. **Flink中的状态**



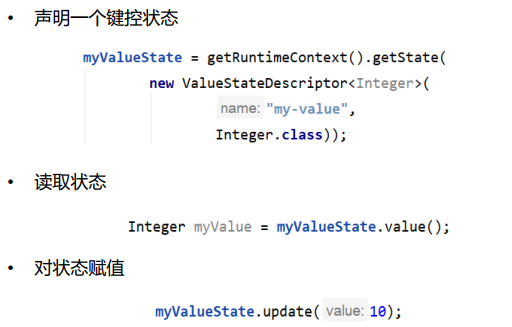
1. **算子状态数据结构**



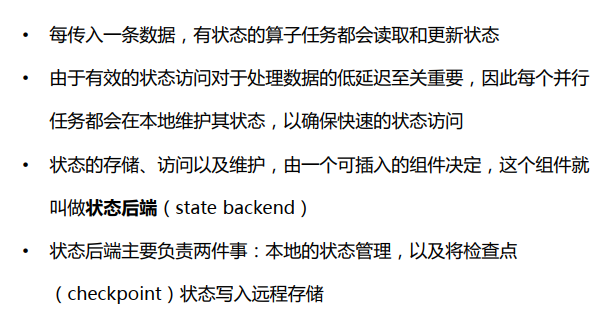
1. **键控状态数据结构**



1. **监控状态的使用**



1. **状态后端**



1. **三种常用的状态后端**

