Scheduling resource responses with right priority

Feb 16, 2018

This document discusses infrastructure needed to allow loading stack notify blink scheduler about the correct prioritises for scheduling resource responses on the main thread.

WebURLLoader already takes base::SingleThreadTaskRunner to post task responses to. It is suggested to introduce a subclass of SingleThreadTaskRunner (PrioritizableTaskRunner) which allows setting priority for all tasks posted via this task runner.

```
class PrioritisableTaskRunner : SingleThreadTaskRunner {
  void SetPriority(Priority priority);

  // Implementation of SingleThreadTaskRunner
}
```

WebURLLoader obtains task runner via FetchContext::GetLoadingTaskRunner, which returns per-frame task runner already for FrameFetchContext and default task runner in all other use cases.

For FrameFetchContext use case task runner will be obtained via newly-introduced `scoped_refptr<PrioritisableTaskRunner> FrameScheduler::GetLoadingTaskRunner()` method. For all other entrypoints a method to wrap any `SingleThreadTaskRunner` into a `PrioritisableTaskRunner` (with `SetPriority` method being no-op in this case) will be provided.

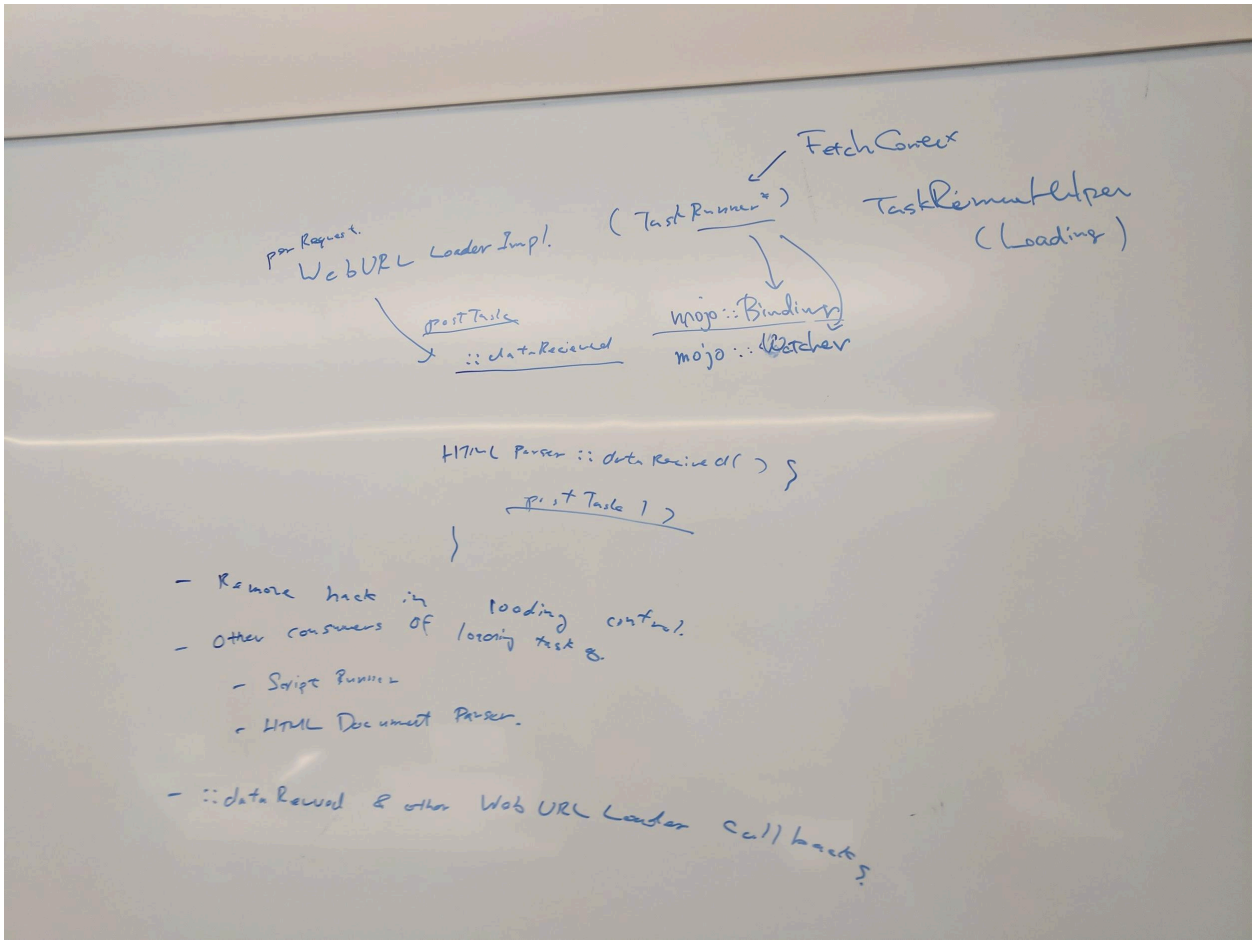
```
class PrioritisableTaskRunnerImpl : PrioritisableTaskRunner {
 public:
  void SetPriority(Priority priority) { priority_ = priority; }

  void PostDelayedTask(...) override { task_runners_[priority_]->PostDelayedTask(...); }

 private:
  std::array<SingleThreadTaskRunner, Priority::kCount> task_runners_;
  Priority priority_;
}
```

For v2 a more complex implementation supporting changing priorities after posting a task can be provided.

Photo from Feb 14 meeting:


FetchContext
TaskRunnerHelper
(Loading)
(TaskRunner*)
per Request.
WebURLLoaderImpl.
mojo::Binding
mojo::Watcher
PostTask
::dataReceived
HTMLParser::dataReceived() {
PostTask()
}
- Remove hack in loading context?
- Other consumers of loading task?
- Script Runner
- HTML Document Parser.
- ::dataReceived & other WebURLLoader callbacks?