

Concurrency — ThreadPoolExecutor

- When to parallelize
- Thread pools for I/O
- Timeouts and per-task retries

ThreadPool Basics

```
from concurrent.futures import ThreadPoolExecutor, as_completed

with ThreadPoolExecutor(max_workers=10) as ex:
    futs = {ex.submit(do_work, d): d for d in devices}
    for fut in as_completed(futs):
        handle(fut.result())
```

Patterns

- Bound workers to avoid overload
- Per-future exception handling
- Summaries at completion

Lab Tie-In

- Used in HTTP fan-out (Lab 3.3)
- Also used Day 4 threaded gather