Performance & Execution Time

The Bottom Line: Performance (and Cost)

Plane	DC to Paris	Speed	Passengers	Throughput (pmph)
Boeing 747	6.5 hours	610 mph	470	286,700
BAD/Sud Concord	3 hours	1350 mph	132	178,200

* Time to run the task ***(Execution Time)***
  - Execution time, response time, latency
* Tasks per day, hour, week, sec, ns ... ***(Performance)***
  - Throughput, bandwidth

Performance and Execution Time

Execution time and performance are reciprocals

$$\frac{ExTime(Y)}{ExTime(X)} = \frac{Performance(X)}{Performance(Y)}$$

* Speed of Concorde vs. Boeing 747
* Throughput of Boeing 747 vs. Concorde

Performance Terminology

"X is n% faster than Y" means:

$$\frac{ExTime(Y)}{ExTime(X)} = \frac{Performance(X)}{Performance(Y)} = 1 + \frac{n}{100}$$

$$n = \frac{100 * (Performance(X) - Performance(Y))}{Performance(Y)}$$

$$n = \frac{100 * (ExTime(Y) - ExTime(X))}{ExTime(X)}$$

Example

Example: Y takes 15 seconds to complete a task, X takes 10 seconds. What % faster is X?

$$n = \frac{100 * (ExTime(Y) - ExTime(X))}{ExTime(X)}$$

$$n = \frac{100 * (15 - 10)}{10}$$

$$n = 50\%$$

Or this way:

$$\frac{15}{10} = 1.5 = 50\%$$