My personal manifesto about the widely misunderstood field of real-time computing...

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Sequencing Criteria

Since there are multiple possible sequences of access by ready threads to sequentially shared resources, there must be a basis for creating or selecting a particular one - i.e., some figure of merit for each possible sequence, with respect to the needs of any given system or set of applications or circumstances [Pinedo 02].

In real-time systems, that *sequencing criterion* or *objective function* (these terms are commonly used interchangeably) most importantly includes (but in general is not limited to) the collective timeliness of the time-constrained actions. Other, non-timeliness, considerations in the criterion typically include the relative importance's of the actions (importance is orthogonal to urgency), precedence constraints, resource dependencies, etc. For simplicity and brevity, multicriteria sequencing [T'Kindt 02] will be disregarded on this page.

Any sequencing criterion in a real-time system has two timeliness factors:

- the *optimality* of timeliness of eligible time-constrained actions (i.e., how well all the time constraints of eligible threads are satisfied) - discussed next on the timeliness optimality page;
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AWACS Tracker

History

and the *predictability* of that optimality - discussed subsequently on the predictability page.

These two factors are not always clearly distinguished from one another, but in real-time systems it is essential to do so.

[To be continued...]

References:

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