Software or Silicon --
What's the Best Route to Java™ ?

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Hypothesis

❏ **Networked, Embedded 'Java-aware' applications will benefit from Java silicon.**

❏ **Client-side characteristics:**
- ➢ **Low-consumables**
  - ◆ **Low power**
  - ◆ **Low cost**
- ➢ **Highly integrated**
- ➢ **High volume**
  - ◆ **Consumer market**

❏ **Examples:**
- ➢ **Telephony**
- ➢ **Industrial Controls**
- ➢ **"Web appliances"**

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Evidence

❑ **Rockwell has been quietly producing the AAMP family of microprocessors for the past fifteen years.**

❑ **Simple, elegant architecture**
- ➤ **Stack-based, similar to Java Virtual Machine**
  - ◆ **16-bit word, however**
- ➤ **Amenable to formal verification**
  - ◆ **Proofs of correctness done under NASA funding (with SRI)**

❑ **Wide range of deployed applications**
- ➤ **Commercial OEM GPS receivers**
- ➤ **Avionics Displays and Autopilots (747-400, 777, others)**
- ➤ **Telephony**

❑ **Low consumables**
- ➤ **Tremendous code density**
- ➤ **Low power, low cost (small die size)**

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Java Silicon

❑ **Rockwell's experience with AAMP indicates that low-end Java silicon can be cost-effective to design and deploy**

❑ **Direct Execution obviates the need for interpreters, Just-In-Time compilers**
- ➤ **Significant memory savings for embedded systems**
  - ◆ **In the embedded world, memory is *not* free!**
  - ◆ **JVM leads to compact code**

❑ ***Prediction*: Relative to other low-end hardware/software solutions for the emerging "Java-aware" networked, embedded application space, Java silicon will be:**
- ➤ **Simpler**
- ➤ **Cheaper**
- ➤ **Faster**

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