# There are software and there are software

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#### An example: mp3 player on a DSP platform

Commodity Software. Writing software to provide correct functionality

Core Software. Writing a software which optimizes use of available resources

• CPU, memory, power consumption, costs

### **Evolution of Software**

• 1960s and 70s: Hardware was very expensive

- Software needed to written most optimally
  - Mostly in low level language
    - writing was complex
    - Only the best minds could do it
      - India was making a mark
    - Still it was a small fraction of hardware costs

## **Evolution of Software**

- 1980s and 90s: VLSI driven by Moore's law made hardware inexpensive
- Complex Software prevented widespread use
  - High level languages were developed
  - Software writing became simple, especially non-optimized software with correct functionality
    - Only a small number of developers were needed for core-software
- Became a big opportunity for India
  - As it churned out software developers in large numbers at low / moderate costs

### Software as a Service

- Software gets commoditized
  - Low expertise
  - Large volume
  - Lead to high competition

How does one get an edge?

#### Next Wave

- Companies which use a small bunch of core developers
  - To create its own modules (IP) / components
    - Which could speed up production
    - And / or speed up performance

- How does one get a customer to pay for these modules?
  - Competitive advantage: brings agility in development
  - Fixed costs bids
  - Combination of fixed costs and variable cost bids

- Do we have sales and marketing people?
  - Who knows how to sell this competitive advantage?

Do we have delivery people?
Who use the modules to create competitive advantage?

 Do we have CEO's who understand such business model?