

The Emergence of Core Components: Standards Dynamics And Dominant Designs

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Agenda

- Theoretical background
 - Technological discontinuities and dominant designs
- Empirical overview
 - Analysis of three smartphone platforms: Symbian, Windows Mobile, Java Mobile
- Conclusion

Theoretical overview (1)

- Dominant design: “a single architecture that established dominance in a particular product class” (Abernathy and Utterback, 1978)
- Large number of studies identifying dominant designs in a variety of industries during last 20+ years (e.g. automobile, aircraft, VCR) (overviews by Suarez, 2004; Murmann and Frenken, 2006) (DD ~establishment of de facto standards)
- Important issues surrounding the dominant designs literature:
 - Varying uses of
 - (1) the level of analysis (sometimes not explicated)
 - (2) how to measure establishment of DD (Murmann and Frenken, 2006)

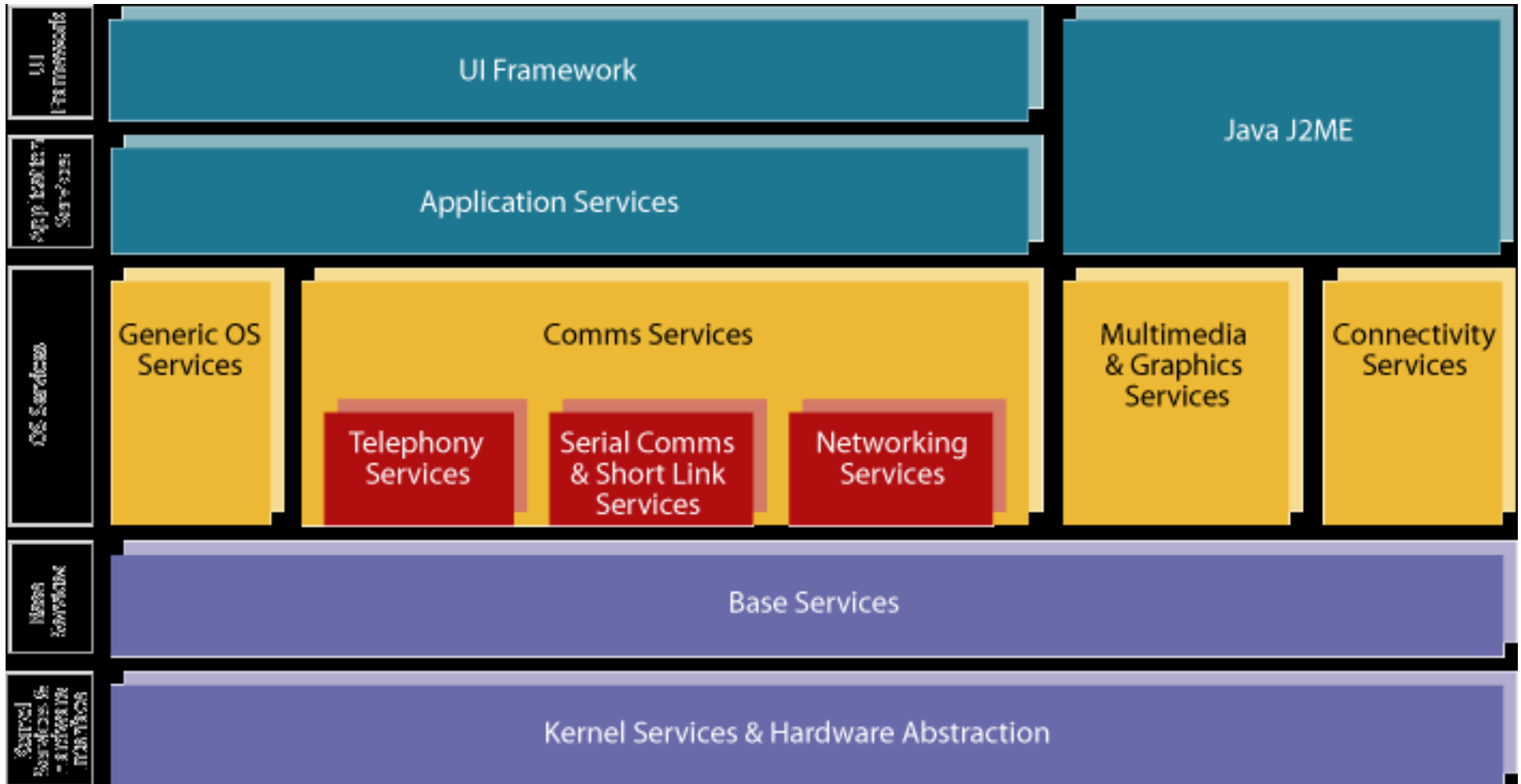
Theoretical overview (2)

- Systems perspective, distinguishing between core and peripheral components (or subsystems); dominant design determined by consistency in core components (Tushman and Murmann, 1998; Murmann and Frenken, 2006)
- Important to explicate level of analysis
- Goal of study: analyze establishment of core components in the smartphone market in a drive toward a dominant design

Empirical overview (1)

- Area of investigation: smartphone platforms. Smartphone defined as mobile handset allowing use of third party applications/software
- Smartphone market share as part of overall mobile handset market: 4.2%. Symbian share ~60%, Windows Mobile ~23% (2005)
- Cases investigated via literature study and interviews (industry/academic experts)
- Level of analysis: platforms/standards at the level of operating system (OS and UI) and middleware; i.e. Symbian; Windows Mobile; Java mobile (J2ME)

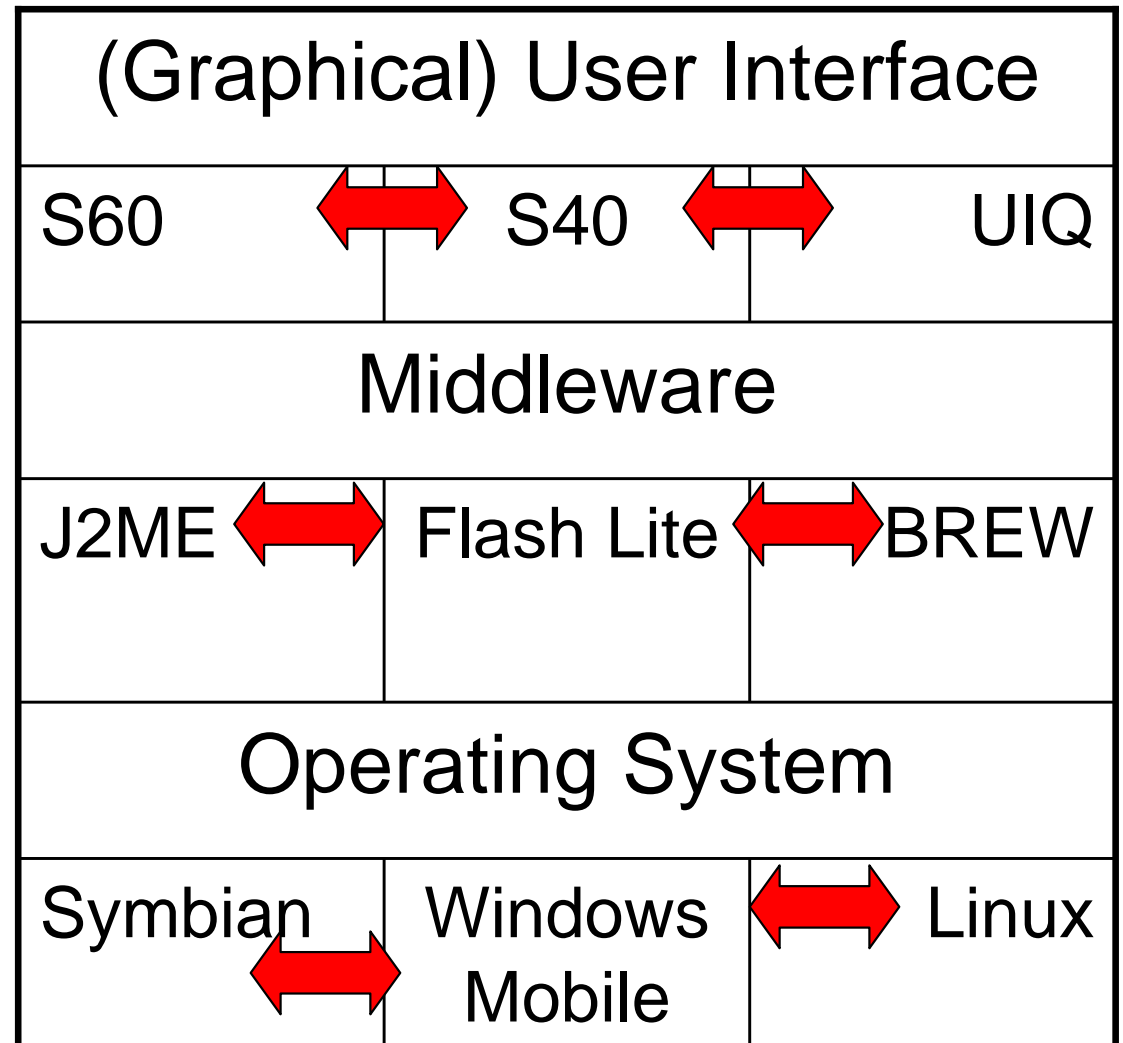
Symbian architecture



Empirical overview (2)

Standard sponsors

- Symbian:
Symbian alliance,
consisting of various
handset makers (e.g.
Nokia, SonyEricsson,
Samsung)
- Windows Mobile:
Microsoft
- Java mobile (J2ME):
• Sun microsystems

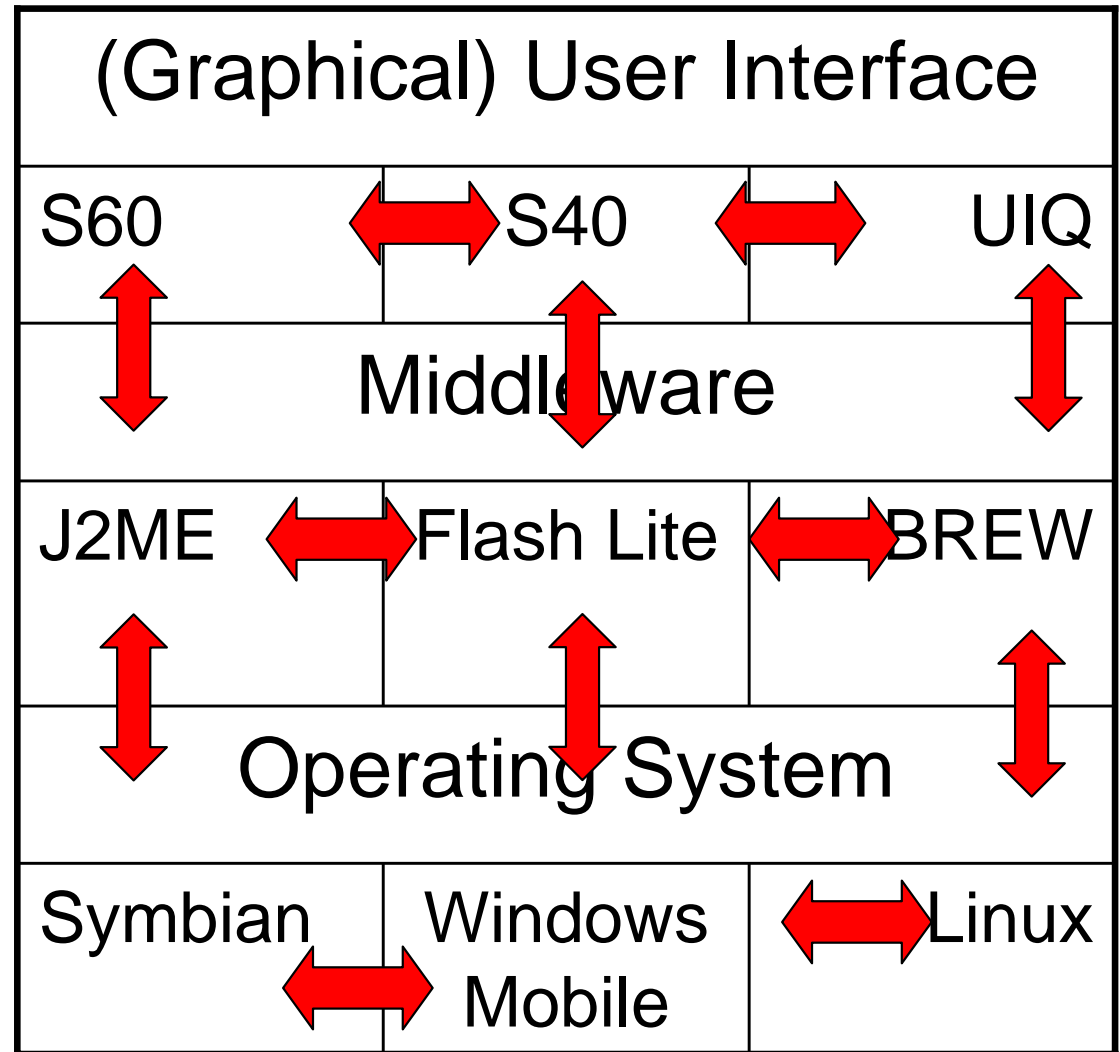


Empirical overview (3)

- Symbian (1998):
 - Underlying ‘standards war’ hypothesis: concerns that Microsoft would leverage dominant position onto the mobile handset. For-profit alliance involving actors that compete in other markets
 - Founding members Psion, Nokia, Ericsson (1998).
 - Evolving alliance involving considerable strategic behavior (departure Motorola, controversies surrounding share redistribution)
 - Two competing User Interfaces (non-interoperable): S60 and UIQ, each with own API’s/applications
- Windows Mobile (2000)
 - Diffusion mainly via operator branded “ODM” devices, when platform rejected by “OEM” handset makers
- Java mobile (~1999):
 - OS independent middleware platform

Empirical overview (4)

- Ambiguous relation between OS, MW, (G)UI layers: not only complementing but also competing.
- Within single OS (Symbian), competition between various UI's (S60 and UIQ)
- Competition between OS's (Symbian vs Windows Mobile) but also between OS's and middleware like J2ME



Conclusion

- Level of “standards war” changing, further complicating anticipation of core components
Competitive dynamics broaden: OS1 vs OS2, but also OS1 vs UI1; OS1 vs MW1
- Symbian as example of alliance based standardization; incorporated as company, strategically positioned as vendor-neutral consortium
- Unclear to what extent market will converge toward single dominant design (winner take all), as originally anticipated