

Imaging in mobile entertainment applications

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Outline of presentation

- General introduction to Softhouse
- Twin Factor®
 - User view
 - Technology
- New services

Softhouse – Basic Facts

- Founded 1996
- Offices in Malmö and Karlskrona, Sweden
- 65 employees
- Consultant services and products within Mobile Multimedia
- Customers are mainly device manufacturers, content aggregators and operators
- Independent (privately owned)

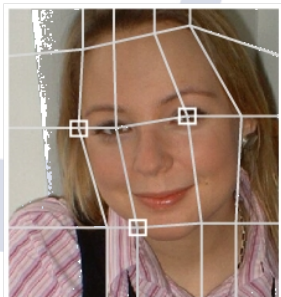
t look



Really cool!
You have 87 %
Twin Factor® with
Charlize Theron!!

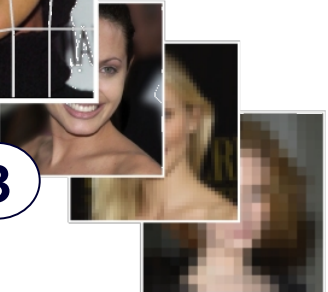


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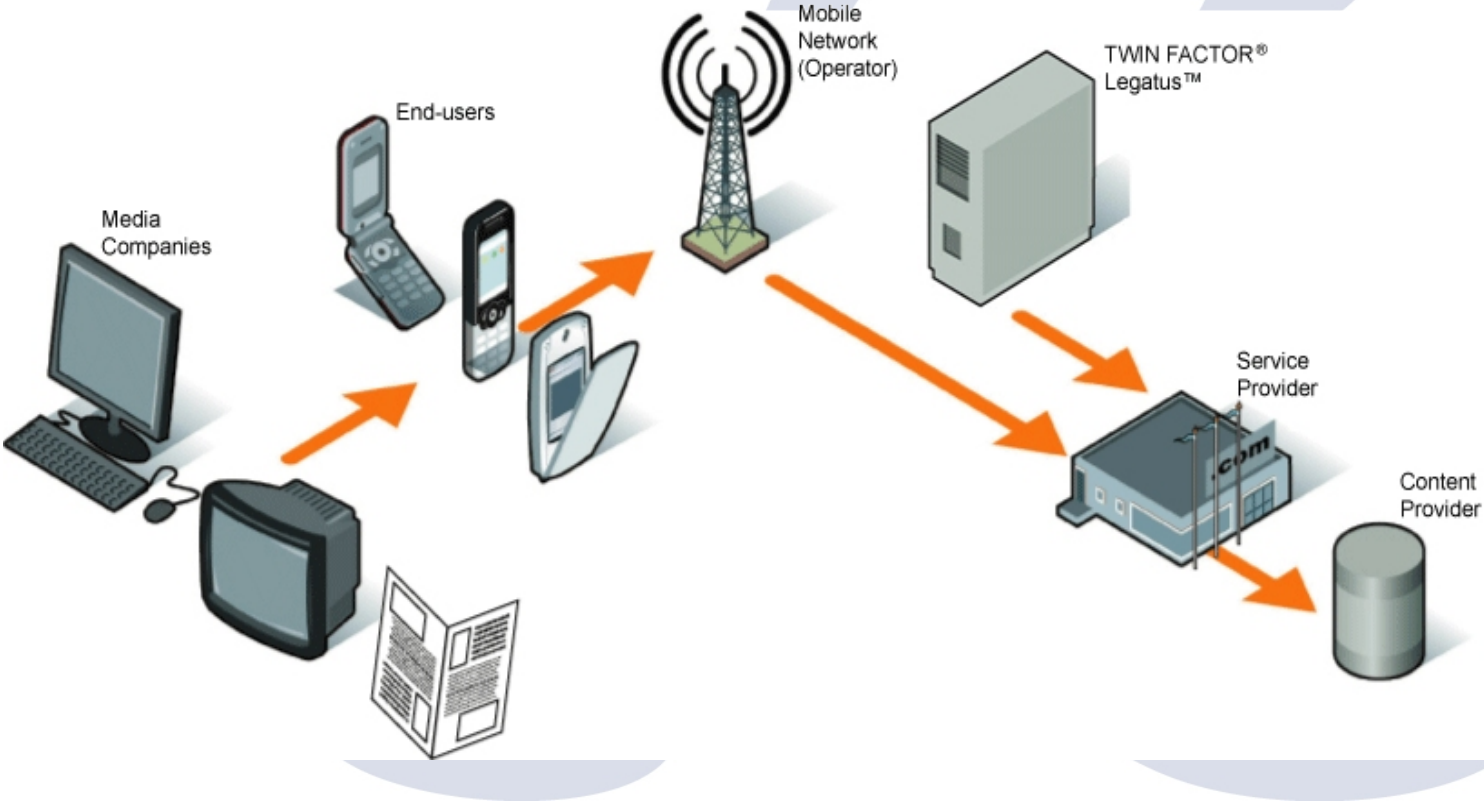


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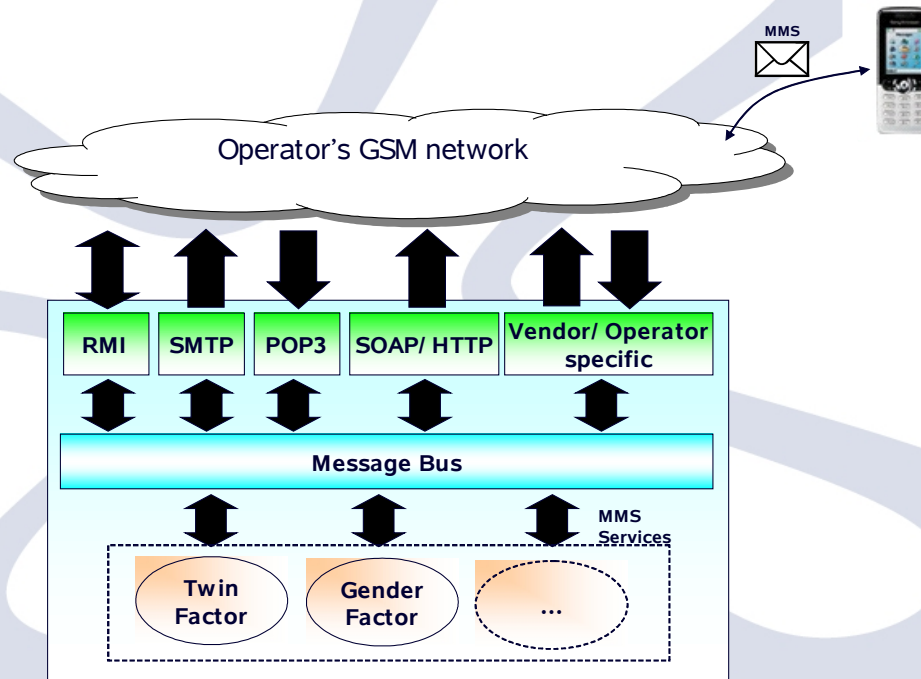
System overview



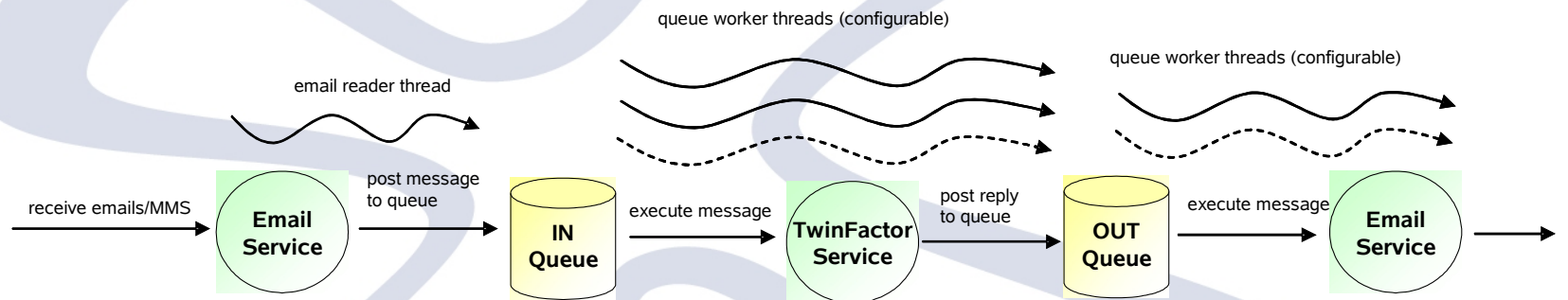
What is Legatus™?

- Legatus™ – latin for ambassador, messenger
- Legatus™ is a generic messaging platform currently used for MMS services
- Legatus™ provides
 - A message queue
 - Message routing facilities
 - Web based service administration
 - User management
 - Statistics
 - Logging
- Legatus™ is 100 percent Java based and runs on top of the JBoss application server

Legatus™ – High Level Architecture

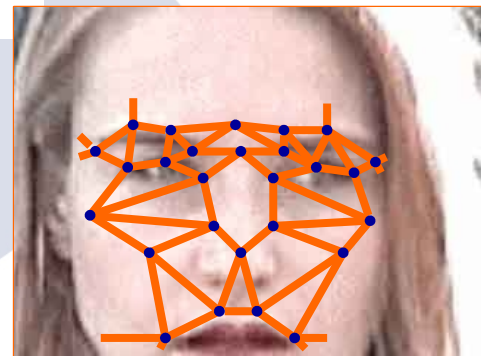


Legatus™ message queue



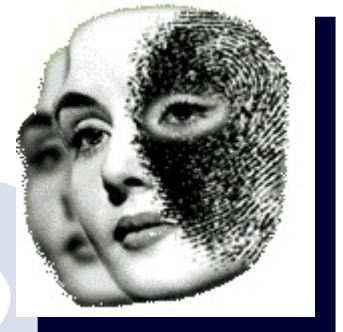
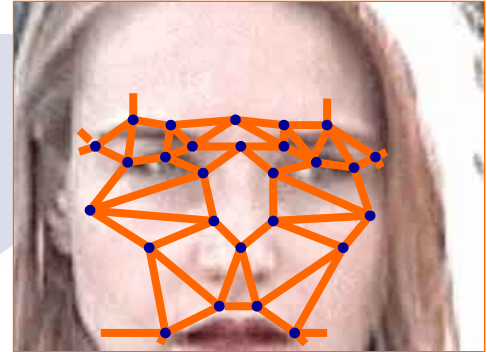
Face recognition

- Commercial face recognition engines target security applications
- Typical features of a recognition engine:
 - Find faces and eye positions on images
 - Matching of faces against images stored in a database
 - Analysis of the gender of face
- Templates
- Local Feature Analysis/ Vector Feature Analysis
 - Based on face geometry or distances between different features such as nose and mouth
 - Low/medium resolution images
 - Matching faster for VFA than for LFA
- Surface Texture Analysis
 - Skin biometrics or the analysis of dermal texture
- Can be used in combination to improve accuracy (verification rate/false accept rate)



Twin Factor face recognition

- Accuracy requirements are moderate
- Speed is important
- The face matching uses a 'Local Feature Analysis'-algorithm, which is similar to algorithms for fingerprint matching
- All images in the database have an attached "faceprint"-template for rapid face matching
- The Twin Factor® service uses coordinates from the "faceprints" to generate morph sequences



Status for Twin Factor®

- Concept with Swedish patent accepted and PCT application processing for international patent.
- Swedish trademark accepted and trademark application processing for Europe and some other key markets.
- Service launched in Norway, Sweden, Malaysia, Australia and UK.
- Tremendous success in Norway, appr. 200.000 users in 12 months paying 20 NOK (€ 2.40) each.
- So far 10 partnerships covering totally 32 countries.
- Next expected launches in Holland, Israel, Denmark, China, South Africa etc. Goal to launch in 25 countries this year!
- Winner of Ericsson Mobile Application Award in Zürich Dec 2004.
- 500M+ subscribers expected to be reached worldwide by launches planned Q2 2005.

The Sister Factor...



The Offspring Factor...



Animalizer™

- The man...





Animalizer™

- The woman...

When I'm 64™

“When I get older, losing my hair, many years from now. [...]

Will you still need me, will you still feed me, when I'm sixty-four?”.



The aging process

- Face morphing library
 - morphing towards a stereotype
 - templates
 - mask



When I'm 64™





When I'm 64™

Summary

- Twin Factor is an example of how advanced image processing can be used for Mobile Entertainment services
- A number of new services based on the same platform but other ideas and algorithms are in the pipe-line
- Softhouse provides innovative services by using its competence within Mobile Multimedia and telecom and combining it with state-of-the-art image processing components and algorithms from partners