



Implementation of a network proxy to enhance user privacy in location based services

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ARCHITECTS OF AN INTERNET WORLD



AGENDA

- Introduction
- Role Players
- Private Information Access
- Implementation Issues
- Designing each network entity
- Conclusion

What are Location Based Services ?

- Exploit location knowledge of mobile user.
- User asks for service on mobile.
- Many informative and innovative services, e.g. Navigation, Tracking, Yellow pages.
- Business opportunities for many service providers.



Examples for Location Based Services

Location based services categories	Standardized Service Types
Public Safety Services	Emergency Services
	emergency Alert Services
Location Sensitive Charging	Zoned Billing
Tracking Services	Person Tracking
	Fleet Management
	Asset Management
Traffic Monitoring	Traffic Congestion Reporting
Enhanced Call Routing	Roadside Assistance
	Routing to Nearest Commercial Enterprise
Location Based Information Services	Traffic and public transportation Information.
	City Sightseeing
	Localized Advertising
	Mobile Yellow Pages
	Weather
	Asset and Service Finding
Entertainment and Community Services	Gaming
	Find Your Friend
	Dating
	Chatting
	Route Finding
	Where-am-I
Service Provider Specific Services	

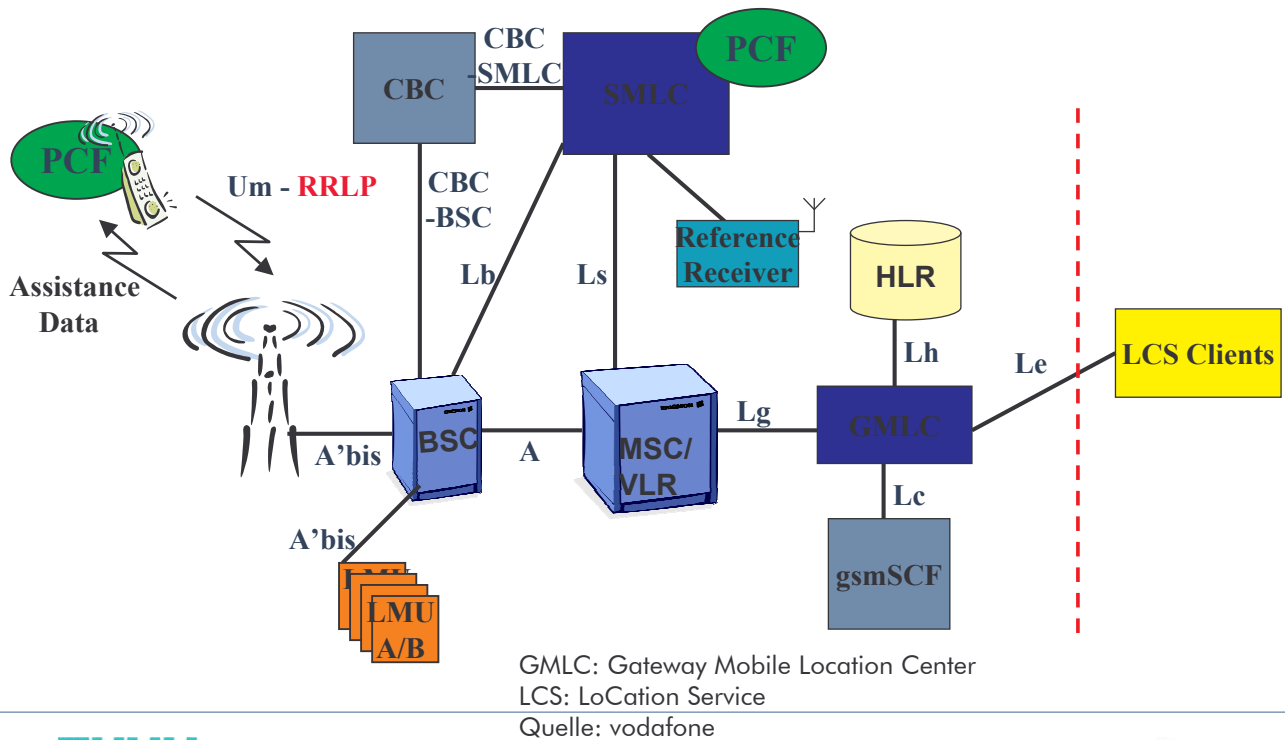
What is privacy ?

- Keep my personal information/profile to myself
- Remain anonymous with respect to certain personal activities.
 - Who knows about me ?
 - When does he know ?
 - How does he know ?
 - To what extent does he know ?
 - Who controls the info that I do not wish to share.

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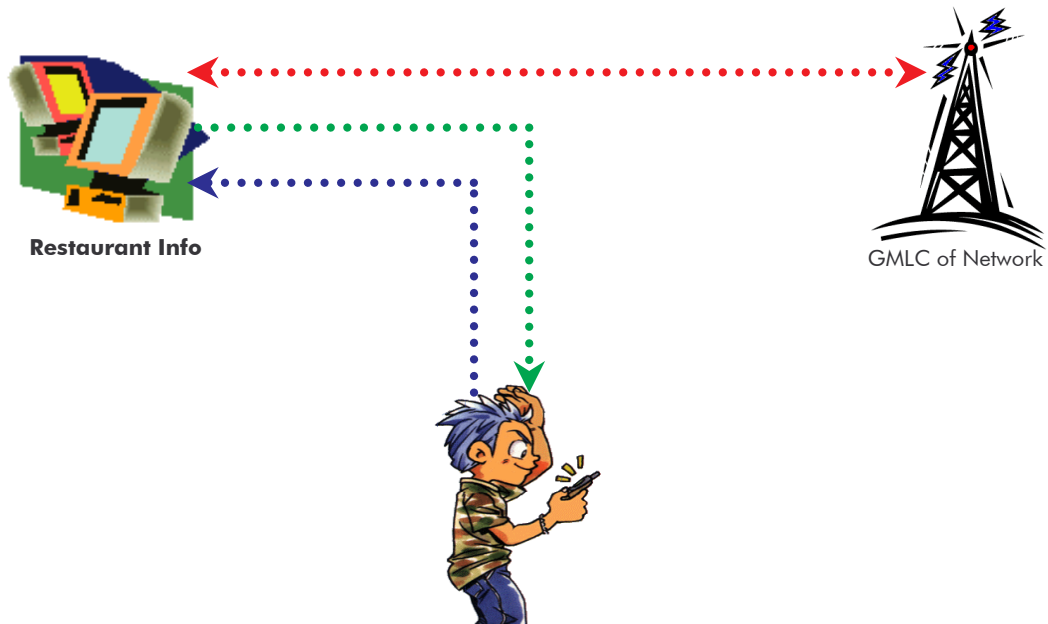
Network Elements Involved



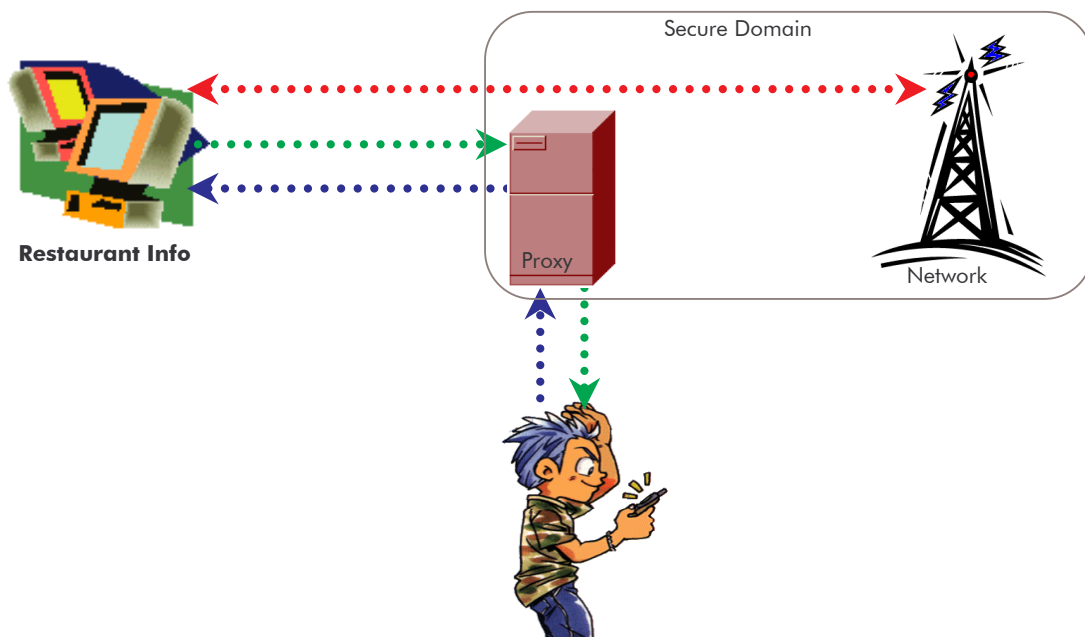
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Information flow



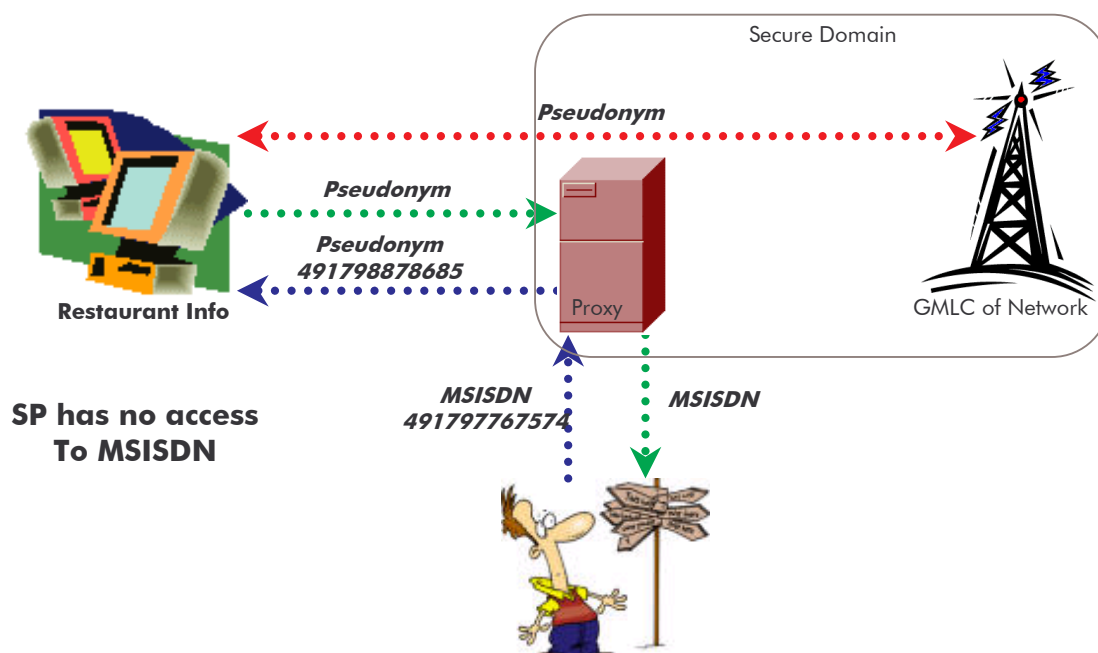
Information flow with proxy



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Implementation Scenario



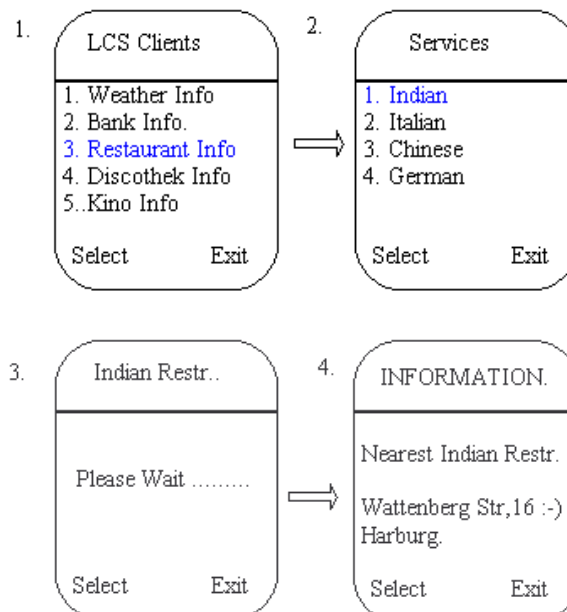
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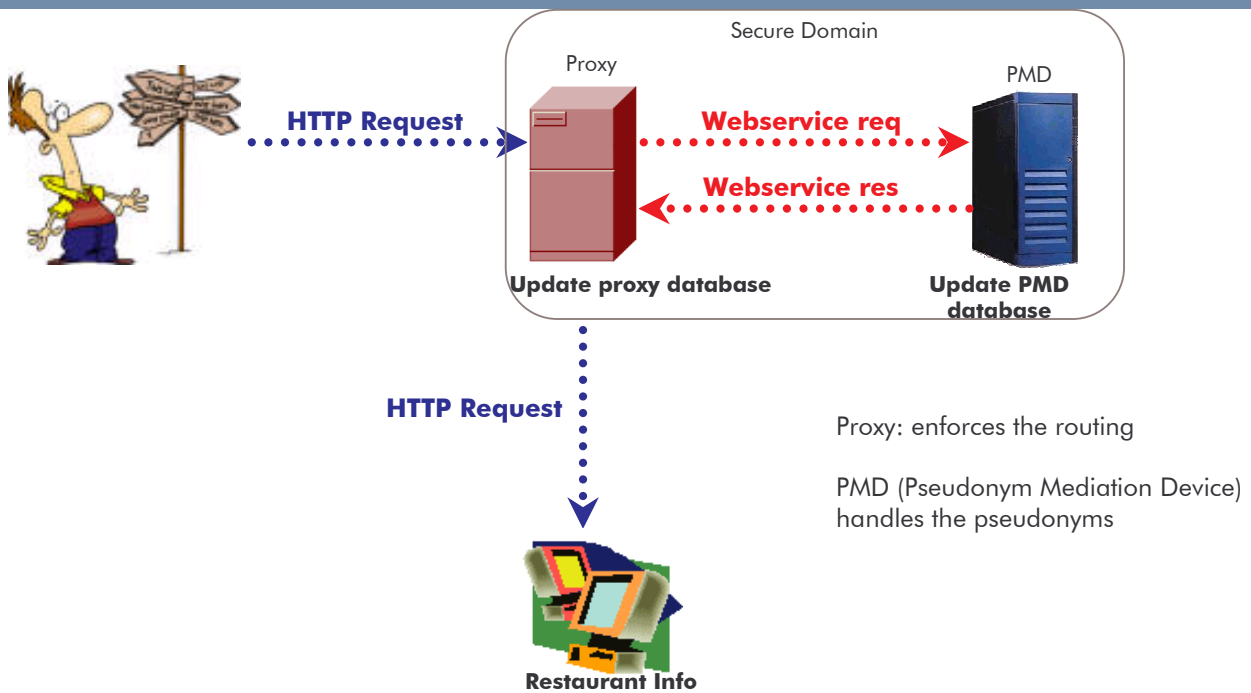
Designing the user interface on mobile



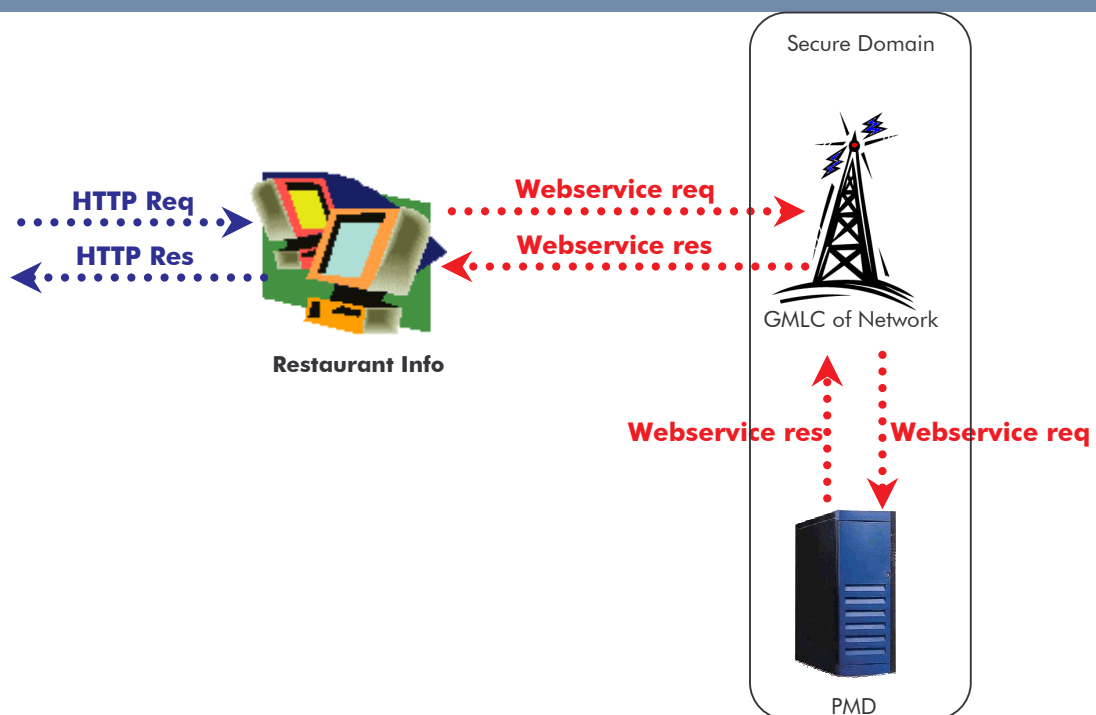
**User interface
designed using J2ME
MIDlet**



Designing the network proxy



Designing the LCS Client



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Conclusions

- PROS
 - Proxy hides user identity and gives only location infmn.
 - Can be implemented for SMS and WAP gateways also.
 - All private information within the network security domain.
 - Suited for most of the LBS Service Providers.
- CONS
 - Some service providers (5%) have access to infmn.
 - 95 % of SP's are unhappy :-)

VIELEN DANK



THANK YOU

NAMASKAR