



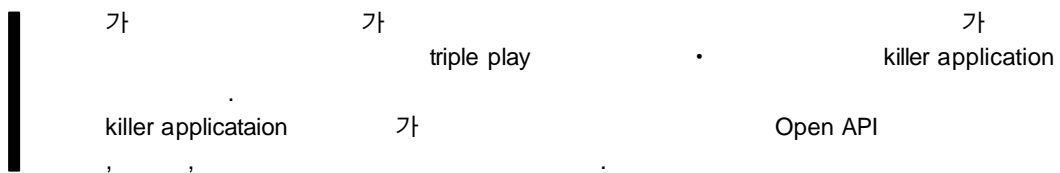
# Open API

## Technology Trend on Open API for Converged Telecommunication Services

(Y.M. Park)

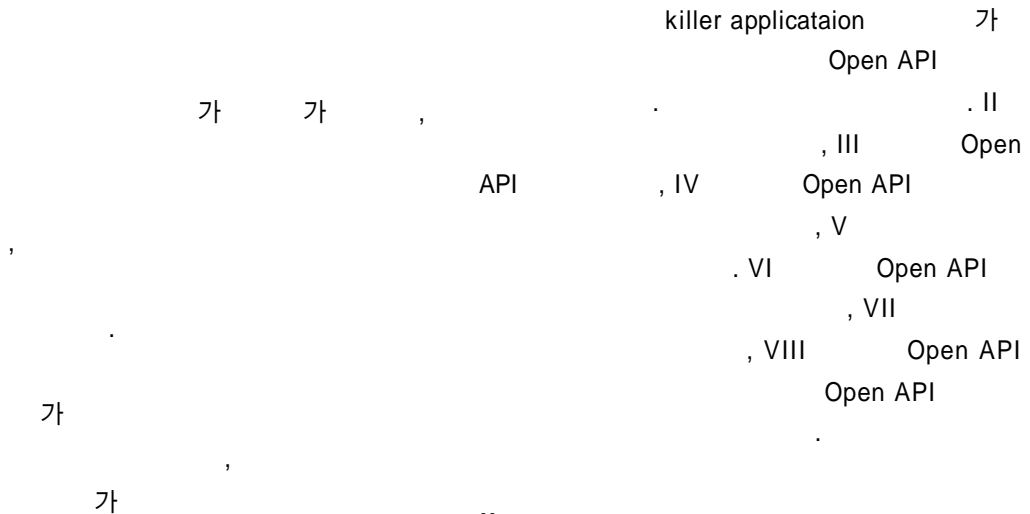
(Y.I. Choi)

(B.S. Lee)



### I.

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### II.

[1].

(vendor)

(Open API)

( 1)

[2].

API

1980

가 가

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가



< 1> Open API

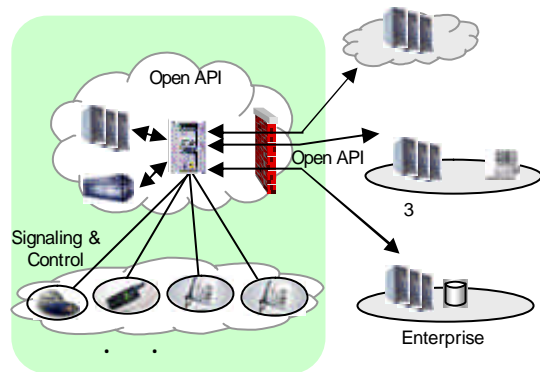
	Open API	Open API	
	( )	( API )	
		API Script	가
	가	가	가
	1~2	2~3	가
	( 가)	(+ IT 가)	IT 가
IT CT	가	가	•
	가	가	/
	가	가	Ubiquitous Network (Situation-aware) Context 가
		+	Win-Win 가

< 1> Open API

IV. Business

Open API가

(( 2) ).



( 2) Open API

VNO(Virtual Network Operator) VMNO(Virtual Mobile Network Operator)

, Open API

20%

가

killer service

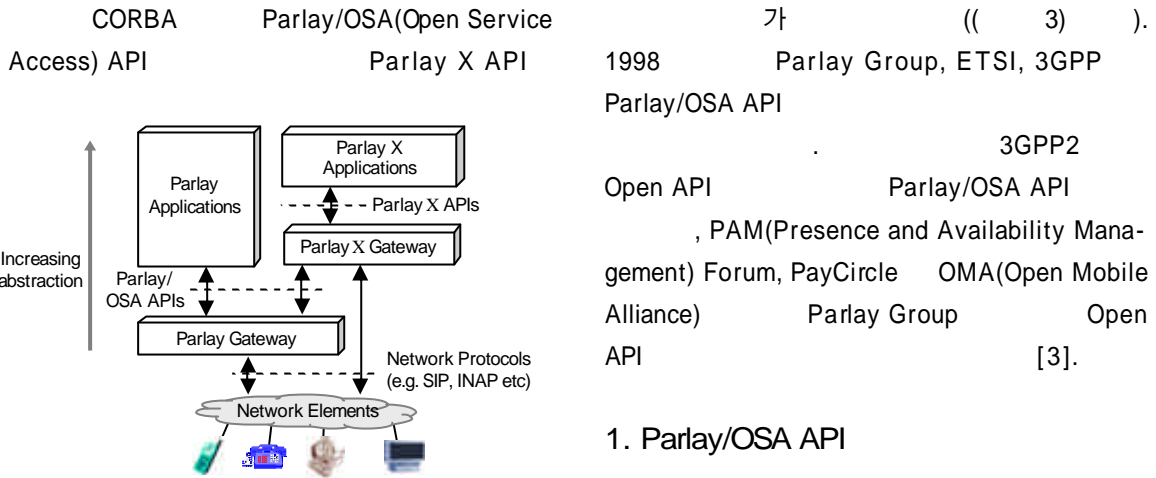
가 , 3

killer service

, killer enabling environment

V.

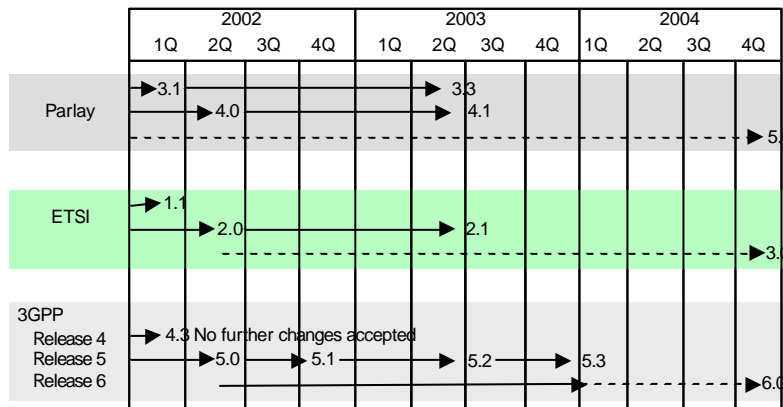
Open API



( 3) Parlay/OSA API Parlay X API[3] Parlay/OSA API 2003 8

< 2> Parlay/OSA API [3]

Version	Key Features	Network Elements	Year
1.0		PSTN	3 1998
2.0		PSTN IP	6 1999
3.0	(charging)	M-Business	10 2001
4.0	(Presence and Availability Management), PAM	가 , PAM	12 2003
5.0	PAM (user profile management), (MMS), (policy enforcement)		15 2004
6.0	Policy-enabling SCF, SLA AAA 가		2005



( 4) Parlay/OSA API

Parlay API 4.1(ETSI OSA Release 2.1, 3GPP OSA Release 5.1)

Parlay/OSA API 4.1 14 , < 2> 12 UML Parlay/OSA API XML WSDL(Web Service Description Language) 가 Open API 2004 4 Parlay/OSA API 5.0 MMS(Multimedia Messaging Service), User Profile Management, Policy Enforcement SCF 가 ( 4) Parlay/OSA API Parlay , ETSI, 3GPP 2004 5 12 Parlay 13 Parlay X API 3.0 [3]. ( 5) 3 가 Parlay X API , Pol- icy-enabling SCF SLA AAA 가 MMS, Payment, OMA Parlay X API makeACall( ) 가

## 2. Parlay X API

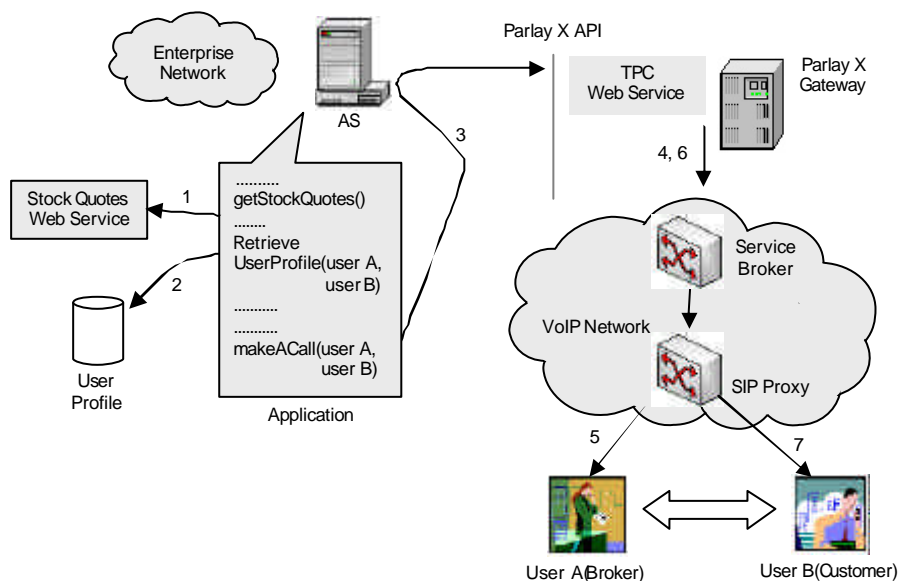
Parlay X API

< 3> Parlay X API V1.0[3]

SCF	APIs
Third Party Call	makeACall(), getCallInformation(), endCall(), cancelCallRequest()
Network Initiated Third Party Call	handleBusy(), handleNotReachable(), handleNoAnswer(), handleCalledNumber(), handleOffHook()
SMS	sendSms(), sendSmsLogo, sendSmsRingtone(), getSmsDeliveryStatus(), notifySmsReception(), getReceivedSms()
Multimedia Message	sendMessage(), getMessagdDeliveryStatus(), getReceivedMessages(), getMessageURIs(), getMessage(), notifyMessageReception()
Payment	chargeAmount(), refundAmount(), chargeVolume(), getAmount(), refundVolume(), reserveAmount(), reserveAdditionalAmount(), chargeReservation(), releaseReservation(), getAmount(), reserveVolume(), reserveAdditionalVolume(), chargeReservation(), releaseReservation()
Account Management	getBalance(), getCrediExpiryDate(), balanceUpdate(), voucherUpdate(), getHistory()
User Status	getUserStatus()
Terminal Location	getLocation()

< 4> Parlay X API V2.0[3]

SCF	APIs
Third Party Call	makeACall(), getCallInformation(), endCall(), cancelCallRequest()
Call Notification	HandleBusy(), HandleNotReachable(), HandleNoAnswer(), HandleCalledNumber(), HandleBusy(), NotifyNotReachabel(), NotifyNoAnswer(), NotifyCalledNumber()
Short Messaging	SendSms(), GetMessageDeliveryStatus(), GetReceivedMessages(), GetMessageURIs(), GetMessage(), NotifyMessageReception()
Multimedia Message	sendMessages(), getMessageDeliveryStatus(), getReceivedMessages(), getMessageURIs(), getMessage(), notifyMessageReception()
Payment	chargeAmount(), refundAmount(), chargeVolume(), getAmount(), refundVolume(), reserveAmount(), reserveAdditionalAmount(), chargeReservation(), releaseReservation(), getAmount(), reserveVolume(), reserveAdditionalVolume(), chargeReservation(), releaseReservation()
Account Management	getBalance(), getCrediExpiryDate(), balanceUpdate(), voucherUpdate(), getHistory()
Terminal Status	GetStatus(), GetStatusForGroup(), StartNotification(), EndNotification(), StatusNotification(), StatusError(), StatusEnd()
Terminal Location	GetLocation(), GetTerminalDistance(), GetLocationForGroup(), StartGeographicalNotfication(), StarPeriodicNotification(), EndNotification(), LocationNotification(), LocationError(), LocationEnd()
Call Handling	SetRules(), SetRulesForGroup(), GetRules(), ClearRules()
Audio Call	PlayTextMessage(), PlayAudioMessage(), PlayVoiceXmlMessage(), GetMessageStatusEndMessage()
Multimedia Conference	createConference(), getConferenceInfo(), endConference(), inviteParticipant(), disconnectParticipant(), getParticipantInfo(), getParticipants(), addMediaForParticipant(), deleteMediaForParticipant()
Address List Management	createGroup(), createGroup(), queryGroups(), setAccess(), queryAccess(), addMember(), addMembers(), deleteMember(), deleteMembers(), queryMembers(), addGroupAttribute(), deleteGroupAttribute(), queryGroupAttributes(), addGroupMemberAttribute(), deleteGroupMemberAttribute(), queryGroupMemberAttributes(), addMemberAttribute(), queryMemberAttributes(), deleteMemberAttribute()
Presence	subscribePresence(), getUserPresence(), startPresenceNotification(), endPresenceNotification(), statusChanged(), statusEnd(), notifySubscription(), subscriptionEnded(), publish(), getOpenSubscriptions(), updatdSubscriptionAuthorization(), getMyWatchers(), getSubscribedAttributes(), blockSubscription()



( 5) Parlay X API 3

## VI. Open API

2000  
Open API 가  
, 2004 5 < 5>  
Parlay/OSA API 200  
, 38% 가  
[3].

< 5> Parlay/OSA API [3]

Parlay/OSA Gateway	26
Parlay/OSA Application	70
Parlay -X Platforms	11
Application Server	20
Development Environment/SCE	12
Simulators and test tools	8
Specialised SCS	3
Developer Program	9
Analyst Reports	4
Other	20
Courses and Events	18
Total	201

### 1. Open API Gateway

< 6> Open API

### 2. Application Server

< 7> Open API  
, < 8> Open API

### 3.

가

< 6> Open API [3]

AePONA	Cause Way	NGN
Appium	EWay XWay	Parlay/OSA Gateway Parlay X Gateway
Argela	Argela IN	OSA/Parlay Gateway, Parlay X Gateway
Ericsson	NRG(Network Resource Gateway)	Parlay X API Parlay/ OSA API
Fujitsu	GeoServer	IMT -2000 mobile protocol
Incomit	OSA Gateway	Parlay API V3.3
Lucent	MiLife ISG	Parlay/OSA V4.1, Parlay X API
Marconi	AMG	Parlay API V3.2
Oksijen	INOX -GW	Parlay API V3.0
Redknee	Synaxis -2100	Mobile Network Gateway
Telcordia	OSP(Open Service Platform)	Parlay X CORBA Parlay/OSA
Herit	INIGate	Parlay API V4.1

< 7> Open API [3]

AePONA	Causeway	NGN
Appium	Appium- TAS	Parlay API V2.1
IBM	WS Server	Parlay X, Parlay/OSA
Incomit	Movade A.S.	Parlay API V3.2
Infitel	Virtual Network Server	InfiScript Parlay/ OSA
jNETx	jNETx Telecom A.S.	Parlay API V3.1
Oksijen	INOX -AS	Parlay API V3.0
Personeta	Telco Application Server	Parlay API V3.0
Solomio	Smart Call Service Platform	Parlay API V3.1
Telenity	Canvas OSA Service Node	Media Server
Telcordia	Application Server	

< 8> Open API [3]

AePONA	Call Manager	incoming call
Appium	Unified Messaging	Unified e-mail, voice-mail, fax conversion media
Atsonic	sweetTraffic	(mobile phone PDA)
Corebridge	MagicTel	가 가 (preferences, priorities) e-mail, fax, voice phone single infrastructure
Ecrio	Rich Instant Messaging	instant messaging Yahoo, MSN, ICQ
Ericsson	Prepaid Application	recharging 가
IBM	Agent Notification Service	Parlay message, web . User location notification voice, e-mail,
Lucent	iLocator	가
Oksijen	INOX-P Prepaid	Fixed, Mobile, GPRS
Redknee	E-car	
Solomio	Smart Call Service	In-call, Connect call, Missed call, Home call, Office call
Telenity	Smart Alert	, 가 가
Teltier	FreeCall	가 가
Phonepages	Phonepages PEaBoo	가
Net4Call	DigiPet	
Infitel	Personal Call Manager	, ,

Open API Pre- API .  
 paid 가 , Parlay Open API  
 Open API가 < 9> .  
 Open 4.  
 API , Open API ,  
 . 2004  
 SPRINT IBM  
 BT API , Open  
 , 가  
 . < 10> Open API  
 Open .



&lt; 9&gt;

[3]

Telecom Italia	2002. 2.	Aepona/Ericsson	Deployment
Telesim	2002. 2.	Oksijen	Commercial Deployment
BT	2002. 4.	Marconi	Contract to deploy in 2003
O2(Germany)	2002. 7.	Redknee	Commercial Deployment
KPN Carrier Services	2002. 10.	-	Deployment
Telia Skanova	2002. 11.	-	Deployment
Meteor Communications	2002. 11.	jNETx	Deployment
Hutchison CAT (Thailand)	2003. 4.	Kabira/Motorola	Deployment
Hutchison 3G Australia	2003. 5.	Ericsson	Commercial Deployment
Hutchison 3G Austria	2003. 5.	Ericsson	Deployment
Hutchison 3G Denmark	2003. 5.	Ericsson	Deployment
Hutchison 3G Italy	2003. 5.	Ericsson	Commercial Deployment
Hutchison 3G Sweden	2003. 5.	Ericsson	Commercial Deployment
Telmex	2003. 5.	Ericsson	Deployment
Mobifone	2003. 6.	Ericsson	Deployment
Korea Telecom	2003. 10.	Herit	Deployment
AT&T	2001. 5.	Ericsson	Trial
Telenor	2002. 2.	Net4Call	Trial(P1110, PATS)
mmO2	2002. 6.	(various)	Trial
Mobilkom Austria	2002. 6.	-	Trial
NTT	2002. 7.	-	Trial
Aviero(Portugal)	2002. 7.	Siemens/FOKUS	UMTS Trial(Opium)
Vodafone(Spain)	2002. 10.	Nortel	UMTS Trial(Opium)
Orange	2002. 12.	-	Trial
SmarTone	2002. 3.	-	Trial
Telefonica Moviles	2003. 5.	Lucent	Trial
Sprint	2003. 6.	Appium/Ericsson	Trial
Optimus	2003. 6.	AePONA, HP, jnetX, Schlumberger SEMA	Trial
Eircom	2003. 6.	AePONA	Trial(P1110)
Amena	2003. 6.	-	Trial
Singtel	2003. 7.	Ericsson	Trial

&lt; 10&gt; Open API

[3]

AePONA	Causeway 3rd Party SW Development Kit	Causeway Parlay Client Proxy	Parlay
Appium	Appium GBox	Parlay/OSA	
Argela	Argela SCE	Multiple API	
Ericsson	NRG SDK	SCE	
IBM	WebSphere Studio	Web	
Infitel	Infitel VNS, InfiScript Studio	Parlay/OSA	GUI
Lucent	MiLife SCE(Service Creation Environment)	Parlay/OSA	
Net4Call	Net4call Access, Rapid X, Call Simulator, Load Generator	Parlay/OSA	
Okisjen	INOX - GAS	INOX	
Telcordia	OSP SCE	SCE	

Open API

CORBA

Open API

Open API 5.

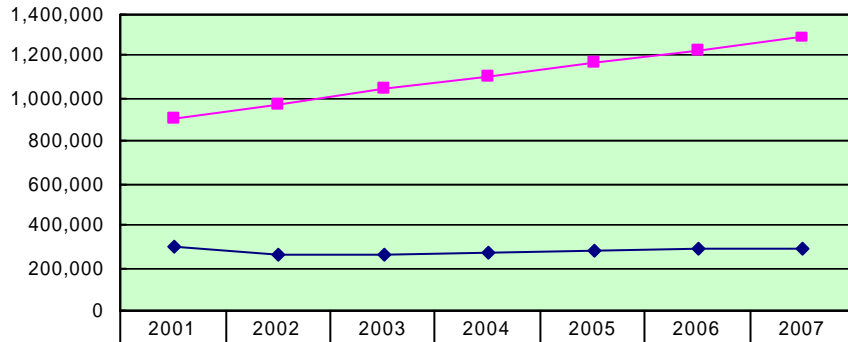
가 . < 11>

< 11>

IBM	Websphere AS	J2EE
MS	.NET	.NET
BEA	WebLogic	J2EE
		J2EE
K4M	eCross	
SUN	SunONE	J2EE
Oracle	Oracle 10g	J2EE

( 6) 2001  
 3,028 , 2003 2,594  
 2007 2,917  
 2003 1 422 2007 1  
 2,887 4  
 Open API  
 ( 7) 3

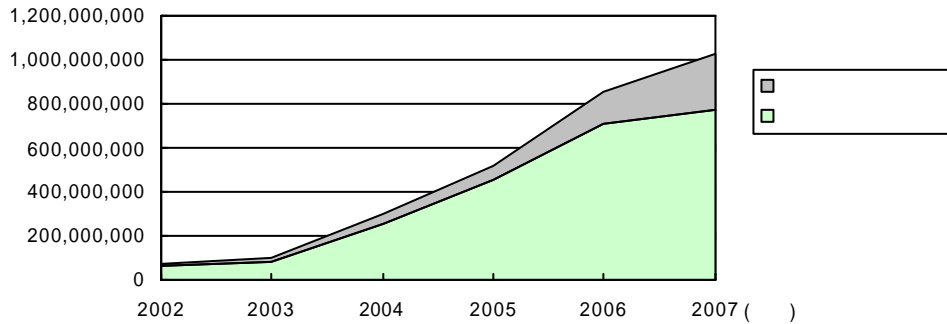
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	2001	2002	2003	2004	2005	2006	2007
◆ Total Telecom Equipment	302,795	263,012	259,407	271,452	281,782	291,246	291,715
◆ Total Telecom Services	904,911	967,471	1,042,200	1,102,963	1,163,112	1,223,664	1,288,780

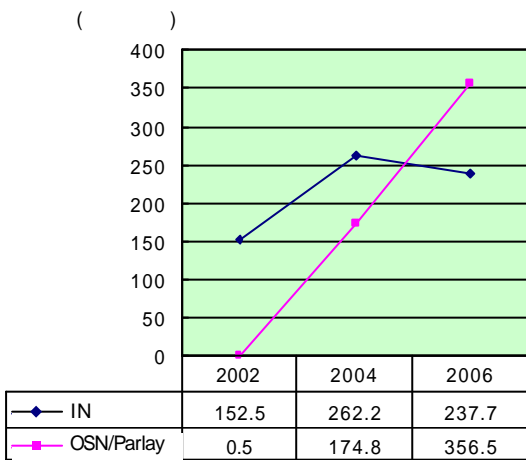
( 6) / [4]

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( 7) Open API [5]

2007 11 9  
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 50 2007 340  
 Open API ( 8)  
 141 2006  
 288 ( )  
 Euro USD ).



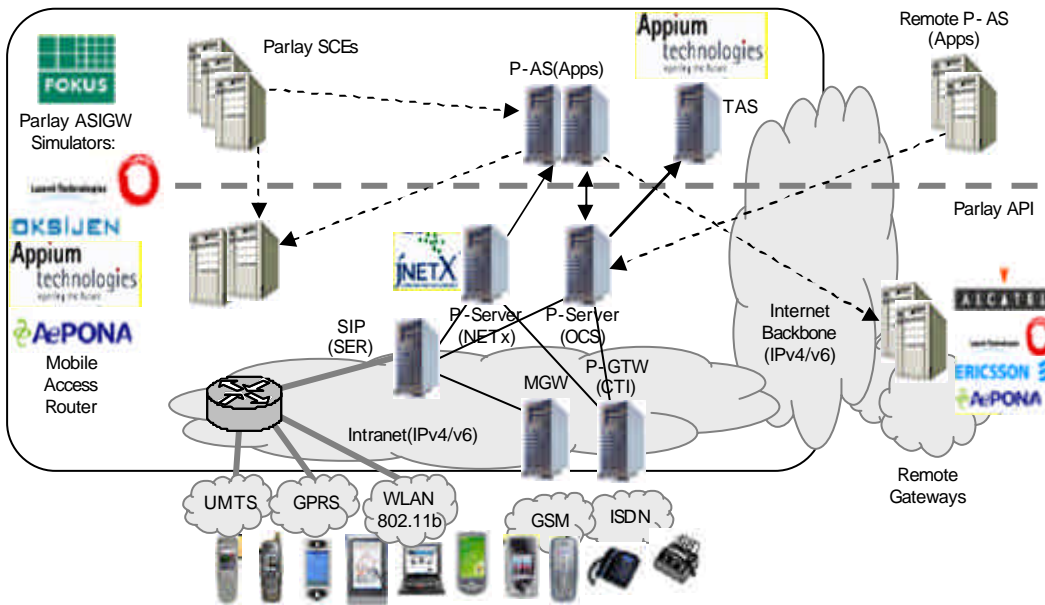
( 8) Open API [6]

6.

Open API  
 ETSI, MSF, FOKUS  
 ETSI가 Open API  
 Parlay/OSA API  
 [7]. 2003 1 2004  
 2 , 2005  
 3 . 2003 1  
 IBM 17 가 Parlay/OSA API  
 3.x , , ,

< 12> 2 OSA/Parlay [7]

가	Accenture, AePONA Ltd, Appium, BT Exact Technologies, Ericsson AB, Fraunhofer FOKUS, IBM, Ind - TeleSoft, Infitel International N.V., jNETx, Net4Call AS., NTT, Oksijen Teknoloji, Open API Solutions, Telecom Italia Lab, Telenity Incorporated, Vodafone Spain(Airtel Movil, S.A.)				
	SCS	Frame-work	Application	User Agent	Simulator
	23%	27%	37%	3%	10%



( 9) Parlay/OSA Playground [9]

2004 1 2 Parlay 가 Open API  
 EU IST(Information Society Technologies), , ,  
 OPIUM(Open Platform for Integration of UMTS Open API 2004  
 Middleware) , <  
 12> Ericsson 17 가 [7]. SK 2004 Open  
 VoIP API  
 MSF MSF .  
 2002 2 / / 2.  
 가 GMI(Global , ,  
 MSF Interoperability) Parlay/OSA API  
 [8]. GMI 2004 MSF  
 release 2 Parlay/OSA API , SK KT  
 Parlay X API click-to-connect ,  
 click-to-conference , GETS(Government  
 Emergency Telephone Service) 3. ETRI  
 ETRI 2004 KT, , LGT 3  
 1994 FOKUS(The Research Open API 6  
 Institute for Open Communication Systems)  
 3 API (BcN) Open  
 Parlay/OSA Playground Open API  
 [9]. Parlay/OSA Playground  
 Parlay/  
 OSA API  
 Playground ( 9) Open API  
 VII. Open API MSF 2  
 GMI 2004 10 Open API  
 1. , QoS, MBMS  
 (Multimedia Broadcast and Multicast Service)  
 BcN API  
 Open API  
 2004 10 Parlay X API 2.0  
 Open API  
 KT , MSF GMI 2004

Open API

VIII.

Open API

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Open API

Open API

가 가

IT

IT

Open API

- [1] Jean-Yves Cochenec, "Activities on Next -gener - ation Networks under Global Information Infra- structure in ITU - T," IEEE Communications Maga- zine, Vol.40, No.7, July 2002, pp.98-101.
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