05-02-2000 U.S. Department of Com Patent and Trademark O PATENT FORM PTO-1619A 101342163 RECORDATION FORM COVER SHEET PATENTS ONLY
a: Please record the attached original document(s) or copy(les). TO: The Commissioner of Patents and Trademarks: **Conveyance Type** Submission Type X Assignment Security Agreement X New Resubmission (Non-Recordation) License Change of Name Document ID# Correction of PTO Error Other Merger Reel # U.S. Government (For Use ONLY by U.S. Government Corrective Document Frame # Departmental File Secret File Reel # Mark if additional names of conveying parties attached Execution Date Month Day Year Conveying Party(ies) Name (line 1) Johnson, Harold Wayne 03152000 Name (line 2) Execution Date Month Day Year Second Party Name (line 1) Kaplan, Martin J 04041997 Name (line 2) Receiving Party Mark if additional names of receiving parties attached If document to be recorded Name (line 1) Sprint Communications Company, L. P. is an assignment and the receiving party is not domicited in the United Name (line 2) States, an appoint of a domestic representative is attached. Address (line 1) 8140 Ward Parkway (Designation must be a separate document from Address (line 2) Mailstop: MOKCMP0506 Assignment.) 64114 Address (line 3) Kansas City **Domestic Representative Name and Address** Enter for the first Receiving Party only. Name Eugene G. Kim Address (line 1) Duft, Graziano & Forest, P.C Address (line 2) 1790 - 30th Street Address (fine 3) Suite 140 Address (line 4) Boulder, CO 80301-1018 FOR OFFICE USE ONLY 05/01/2000 TTOH11 00000275 041697 08826641

Public burden reporting for this collection of information is estimated to average approximately 30 minutes per Cover Sheet to be recorded, including time for reviewing the document and gathering the data needed to complete the Cover Sheet. Send comments regarding this burden estimate so the U.S. Petent and Trademark Office, Chief Information Officer, Washington, D.C. 2021 and to the Office of Information and Regulatory Affeirs, Office of Management and Budget, Province Reduction Project (1981-1907), Washington, D.C. 2023 and and Sheet of Information Collection Sudget Package 0891-0927, Patent and Trademark Assignment Practice. DO NOT SEND REGULATOR REGULATOR ASSIGNMENT DOCUMENTS TO THIS ADDRESS.

Mail documents to be recorded with required cover sheet(s) information to: Commissioner of Patents and Trademarks, Box Assignments , Washington, D.C. 20231

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FORM PTO-1 Expires 06/30/99 C-MB 0651-0027	619B	Page 2	U.S. Department of Commerce Patent and Trademark Office PATENT
Corresponden	t Name and Address	Area Code and Telephone N	amber (913) 624-6668
Name H	arley R. Ball		
Address (line 1) Sp	orint Communications Com		
Address (line 2)	ailstop: MOKCMP0506		The second secon
Address (line 3) 81	40 Ward Parkway		
Address (iine 4) K	ansas City, MO 64114		
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Enter either the P Patent 08/826,641 If this document is be signed by the first na Patent Cooper. Enter P only if	Application Number or the F Application Number(s) In Application Number(s) In Application Number with a new Pater med executing inventor. Ation Treaty (PCT) CT application number a U.S. Application Number been assigned.	nber(s) 0 8 8 26 6 9 Petent Number (DO NOT ENTER BOTH Int Application, enter the date the petent PCT PCT PCT Int an number of properties involved.	Patent Number(s) application was Month Day Year PCT PCT
Fee Amount		for Properties Listed (37 CFR 3	
Method of F Deposit Ac (Enter for pay)	count nent by deposit account or if addi D	tional fees can be charged to the account	#04-1697
Statement and		uthorization to charge additional f	see: Yes X No
To the bes	it of my knowledge and be opy is a true copy of the o	- · ·	s true and correct and any leposit account are authorized, as
Eugene G. Kim	Person Signing	Signature	3/30/00
Haile OI	— — — — — — — — — — — — — — — — — — —	A Signature	Date

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Conveying F Enter additional	Party(ies) Conveying Parties	· · · · · ·	additional name	e of conveying pa	rties attach	ed Execution Date Month Day Year
Name (line 1)	DeNap, Frank Ar	nthony				04041997
Name (line 2)						Execution Date Month Day Year
Name (line 1)	Strand III, John /	\rmdt				04041997
Name (line 2)						Execution Date
Name (line 1)	Edwards, Willian	n L.				Month Day Year 04041997
Name (line 2)						
Receiving P			Mark If ac	iditional names of	receiving p	arties attached
	i Receiving Party(id					If document to be recorded
Name (line 1	' <u>L</u>					is an assignment and the receiving party is not
Name (line 2)	,					domiciled in the United States, an appointment
Address (line 1	·					of a domestic representative is attached. (Designation must be a separate document from
Address (fine 2	· [Assignment.)
Address (line	3)	City	State/Co	ountry	Zip	Code
Name (line 1	,					If document to be recorded is an assignment and the
Name (fine 2	» [receiving party is not domiciled in the United
Address (fine 1	,					States, an appointment of a domestic representative is attached. (Designation must be a separate document from
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FORM PTO-16191) Expres 06/30/99 OMB 0651-0027	RECORDATION FORM COVER SHEET CONTINUATION PATENTS ONLY	U.S. Department of Commerce Patent and Trademark Office PATENT
Conveying Party(ies)	Mark if additional names of conveying parties atta	ched
Enter additional Conveying Partie		Execution Date Month Day Year
Name (line 1) Gorman, Bryan	Lee	04041997
Name (line 2)		Execution Date Month Day Year
Name (line 1) Murat, Bog		04041997
Name (line 2)		Execution Date
Name (line 1) Michael, Swink	Thomas	Month Day Year 04041997
Name (line 2)		
Receiving Party(ies)	Mark If additional names of receiving	parties attached
Enter additional Receiving Party	iles)	
Name (line 1)		If document to be recorded is an assignment and the
Name (line 2)		receiving party is not domiciled in the United States, an appointment of a domestic representative
Address (line 1)		is attached. (Designation must be a separate document from
Address (line 2)		Assignment.)
Address (line 3)	City State/Country	Zip Code
Name (line 1)		if document to be recorded le an assignment and the receiving party is not
Name (line 2)		domiciled in the United States, an appointment of s
Address (tine 1)		domestic representative is attached. (Designation must be a separate document from
Address (line 2)		Assignment.)
Address (line 3)	City State/Country	Zip Code
Application Number(s) or		
	on Number or the Patent Number (DO NOT ENTER BOTH numbers fo	,
Patent Applicati	on Number(s) Patent	Number(s)

ASSIGNMENT AND AGREEMENT IN AN APPLICATION FOR LETTERS PATENT OF THE UNITED STATES OF AMERICA

I hereby declare that I am the sole inventor (if only one inventor is named below) or an original, first and joint inventor (if plural inventors are named below) of the invention relating to "TELECOMMUNICATIONS SYSTEM" described in an application for Letters Patent of the United States of America filed on April 4, 1997, Application No. 08/826,641, or, if not identified here by filing date and serial number, executed by me on even date with my execution of this Assignment.

For valuable consideration received, I hereby sell, assign and transfer to Sprint Communications Company L.P., a corporation duly organized and existing under the laws of the State of Delaware, United States of America, its successors and assigns, my entire right, title and interest, for all countries in and to said inventions and all the rights and privileges under any and all Letters Patent that may be granted therefore, and any divisions, continuations, reissues and extensions thereof.

I agree that, when requested, I will, without charge to said corporation but at its expense, sign all papers, take all rightful oaths, make all rightful declarations and do all acts which may be necessary, desirable or convenient for securing and maintaining patents or other forms of protection for said inventions in any and all countries and for vesting title thereto in said corporation, its successors, assigns or nominees. If I fail to perform those acts requested in the previous sentence, damages will be the amount of any honorarium that I received for this invention(s). This will not preclude Sprint or its successors, assigns and nominees from taking any action for securing, maintaining, or vesting title to Sprint, or its successors, assigns and nominees.

l agree that I will communicate to said corporation or its representatives any facts known to me respecting said inventions and when requested by said corporation and at its expense will testify in any legal proceedings, and generally do everything possible to aid said corporation, its successors, assigns and legal representatives or nominees, to obtain or enforce proper projection for said inventions in any and all countries.

I authorize and empower said corporation, its successors, assigns or nominees, to make application for patent or other form of protection for said inventions in its or their own name, or in my/our name, in any and all countries to invoke and claim for any application for patent or other form of protection for said inventions filed by it or them, the benefit of the right of priority provided by the International Convention for the Protection of Industrial Property, as amended, or by any convention which may henceforth be substituted for it, and to invoke and claim such right of priority without further written or oral authorization from me.

I hereby consent that a copy of this Assignment shall be deemed a full legal and formal equivalent of any assignment, consent to file or like document which may be required in any country for any purpose and more particularly in proof of the right of the said corporation or its successors, assigns or nominees to apply for patent or other proper protection for said inventions, and to claim the aforesaid benefits of the right of priority provided by the International Convention for the Protection of Industrial Property, as amended, or by any convention which may henceforth be substituted for it.

I covenant with Sprint Communications Company L.P., its successors, assigns, legal representatives, and nominees, that to the best of my knowledge the right, title and interest herein conveyed by me are free and clear of any encumbrance, and that I have the full right to convey the same as herein expressed.

This Agreement and Assignment supersedes all other assignments, agreements and addendums related to the above identified application.

After this Assignment has been recorded, please return it to:

Attn Harley R. Ball
Sprint Law Department
8140 Ward Parkway
Mailstop: MOKCMP0506
Kansas City, Missouri 64114

SOLE or JOINT INVENTOR				
Inventor:	Martin Joseph Kaplan (Printed Name)	(Signature)		
Citizenship:	USA Citizen	Date:		
Post Office Add	iress:			
Residence:	10902 Cedar Niles Circle, Olati	ne, Kansas 66061		
1st Witness:	(T'ype or Print)		(Signature)	
2nd Witness:				
	(Type or Print)		(Signature)	
SOLE or JOINT	INVENTOR			
Inventor:	Frank Anthony DeNap (Printed Name)	(Signature)		
Citizenship:	USA Citizen	Date:		
Post Office Add	ress:			
Residence: 1032	24 Walmer, Overland Park, Kansa	s 66212		
1st Witness:	(Type or Print)	_	(Signature)	
O. 4 1974			(o.g.mac)	
2nd Witness:	(Type or Print)		(Signature)	
SOLE or JOINT	INVENTOR			
Inventor:	John Arndt Strand, III (Printed Name)	(Signature)		
Citizenship:	USA Citizen	Date:		
Post Office Address:				
Residence: 1530 S. 22 nd Street, Leavenworth, Kansas 66048				
1st Witness:	(Type or Print)	-	(Signature)	
2nd Witness:				
	(Type or Print)		(Signature)	

SOLE or JOIN	TINVENTOR			-
Inventor:	William Lee Edwards (Printed Name)	(Signature)		
Citizenship:	USA Citizen	Date:		
Post Office Add	dre ss:			
Residence: 10	56.3 Gillette, Overland Park, Kans	as 66215		
1st Witness:	(Type or Print)		(Signature)	
2nd Witness:	(Type or Print)		(Signature)	,
SOLE or JOIN	T INVENTOR			
Inventor:	Bryan Lee Gorman Printed Name)	(Signature)		
Citizenship:	USA Citizen	Date:		
Post Office Add	Ire-s:			
Residence: 652	26 W. 49 th Street, Mission, Kansas	; 66202		
1st Witness:	(Type or Print)		(Signature)	
2nd Witness:	(Type or Print)		(Signature)	
SOLE or JOINT	INVENTOR			
Inventor:	Murat Bog Printed Name)	(Signature)		
Citizenship:	Citizen of Turkey	Date:		
Post Office Address:				
Residence: 864	6 Chestnut Circle, Apt. 1, Kansas	City, Missouri 64131		
Ist Witness:	(Type or Print)		(Signature)	
2nd Witness:				
	(Type or Print)		(Signature)	

SOLE or JOINT	INVENTOR	
Inventor:	Michael Thomas Swink (Printed Name)	(Signature)
Citizenship:	USA Citizen	Date:
Post Office Add	ress:	
Residence: 770	1 Oakview Lane, Lenexa. Kansas 66	216
1st Witness:	(Type or Print)	(Signature)
2nd Witness:	(Type or Print)	(Signature)
SOLE or JOINT	INVENTOR	
Inventor:	Harold Wayne Johnson (Printed Name)	Harold wayne Januar (Signature) Date: March 15 7000
Citizenship:	USA Citizen	Date: March 15 7000
Post Office Addr	eess:	
Residence: HCR	70 Box 7333. Roach, MO 65787	
1st Witness:	(Type or Print)	(Signature)
2nd Witness:	(Type or Print)	(Signature)

ASSIGNMENT AND AGREEMENT IN AN APPLICATION FOR LETTERS PATENT OF THE UNITED STATES OF AMERICA

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I agree that, when requested, I will, without charge to said corporation but at its expense, sign all papers, take all rightful caths, make all rightful declarations and do all acts which may be necessary, desirable or convenient for securing and maintaining patents or other forms of protection for said inventions in any and all countries and for vesting title thereto in said corporation, its successors, assigns or nominees.

I agree that I will communicate to said corporation or its representatives any facts known to me respecting said inventions and when requested by said corporation and at its expense will testify in any legal proceedings, and generally do everything possible to aid said corporation, its successors, assigns and legal representatives or nominees, to obtain or enforce proper protection for said inventions in any and all countries.

I authorize and empower said corporation, its successors, assigns or nominees, to make application for patent or other form of protection for said inventions in its or their own name, or in my/our name, in any and all countries to invoke and claim for any application for patent or other form of protection for said inventions filed by it or them, the benefit of the right of priority provided by the International Convention for the Protection of Industrial Property as amended, or by any convention which may henceforth be substituted for it, and to invoke and claim such right of priority without further written or oral authorization from me.

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After this Assignment has been recorded, please return it to:

Attn: Harley

Harley R. Ball Sprint Law Department 8140 Ward Parkway Mailstop: MOKCMP0506 Kansas City, Missouri 64114

PCDOCS #: 20465

JOINT INVE	NTOP	
JOINT IN VE	NIOR	11111
Inventor (1)	Martin Joseph Kaplan (Type or Print)	Martin , Fastan (Signature in Full)
	(1) pc 0.11	Whiles
Citizenshir	USA Citizen	Date: 7/9/7/
Residence:	10902 Cedar Niles Circle, Olathe, I	Kansas 66061
1st Witness:	(Type cr Print)	(Signature)
2nd Witness:	JAY B. BEATTY (Type or Print)	(Signature)
JOINT INVE	NTOU	
JOHAT HAVE	NIOR	
Inventor (2	Frank Anthony DeNap (Type or Print)	(Signature in Full)
Citizenship	USA Citizen	Date: 4/4/97
Residence:	10324 Walmer, Overland Park, Kai	nsas 66212
1st Witness	Angel K. Romi (Type of Print)	Qual K. Porrui
2nd Witness:	TAY B. BGATTY (Type or Print)	Josh Buth, (Signature)
E VNI TNIOL	NTOR	0 0
Inventor (3)	John Arndt Strand, III (Type or Print)	(Signature in Full)
Citizenship	USA Citizen	Date: 4/4/94
Residence:	1530 S. 22nd Street, Leavenworth,	Kansas 66048
Ist Witness: _	Angel K. Romi (Type or Print)	augel K. Romi (Signature)
2nd Witness:	JAY B. BEATTY (Type or Print)	Jay B Scotts (Signature)

PCDOCS #: 20465

JOINT INVEN	TOR	Had. and all
Inventor (4)	William Lee Edwards (Type or Print)	(Signature in Full)
Citizenship	USA Citizen	Date: 4/4/97
Residence:	10563 Gillette, Overland Park, Kansas	5 66215
1st Witness:	Ange K. Rovui (Type or Print)	(Signature)
2nd Witness:	JAY B. BEATEY (Type or Print)	Jan B. Kestly (Signature)
JOINT INVEN	TOP	7 0 4
		Brunse Gron
Inventor (5)	Bryan Lee Gorman (Type or Print)	(Signature in Full)
Citizenship	USA Citizen	Date: <u>April 4,1997</u>
Residence:	6526 W. 49th Street, Mission, Kansas	66202
1st Witness: _	Angel K. Komu (Type or Print)	Oval K-Konu O (Signature)
2nd Witness: _	JAY B. BEATTY (Type or Print)	(Signature)
JOINT INVEN	TOR	
Inventor (6)	Murat Bog (Type or Print)	(Signature in Full)
Citizenship	Citizen of Turkey	Date: 4/4/97
Residence:	8646 Chestnut Circle, Apt. 1, Kansas	City, Missouri 64131
1st Witness:	Angel K. Romi (Type or Print)	Ungel K. Romi (Signature)
2nd Witness:	JAY B. BEATTY (Type or Print)	(Signature)

PCDOCS #: 20465

JOINT INVEN	NTOR	26/5-1
Inventor (7)	Michael Thomas Swink (Type or Print)	(Signature in Full)
Citizenship	USA C:tizen	Date: 4-4-97
Residence:	7704 Oakview Lane, Lenexa, Kansas 66216	^ · · · · · · · ·
Ist Witness:	Angel K. Romi (Type or Print)	Uncel K. Rome (Signature)
2nd Witness: _	TAY B. BEATTY (Type or Print)	(Signature)
JOINT INVE	NTOR	
Inventor (8)	Harold Wayne Johnson (Type or Print)	(Signature in Full)
Citizenship	USA Citizen	Date:
Residence:	13343 West 103rd Terrace, Lenexa, Kansas	66215
1st Witness:	(Type or Print)	(Signature)
2nd Witness:	(Type or Print)	(Signature)

PCDOCS #: 20465

RECORDED: 04/04/2000