

Digital Realty Trust, Inc.  
Form 424B7  
September 14, 2010

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Registration No. 333-163505

**PROSPECTUS SUPPLEMENT NO. 5**

(To Prospectus dated December 4, 2009)

**7,435,118 Shares**

**Common Stock**

This prospectus supplement no. 5 supplements the prospectus dated December 4, 2009 and supersedes, in its entirety, prospectus supplement no. 4, dated June 18, 2010, relating to the resale by selling securityholders of shares of our common stock issuable upon exchange of the 5.50% Exchangeable Senior Debentures due 2029 of our operating partnership, Digital Realty Trust, L.P.

You should read this prospectus supplement no. 5 in conjunction with the prospectus. This prospectus supplement no. 5 is not complete without, and may not be delivered or used except in conjunction with, the prospectus, including any amendments or supplements to it. This prospectus supplement no. 5 is qualified by reference to the prospectus, except to the extent that the information provided by this prospectus supplement no. 5 supersedes information contained in the prospectus.

**You should consider carefully the risk factors beginning on page 2 of the prospectus as well as the risk factors relating to our business that are incorporated by reference in the prospectus before investing in the shares of common stock issuable upon exchange of the debentures.**

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the accuracy or adequacy of the prospectus or this prospectus supplement no. 5. Any representation to the contrary is a criminal offense.**

The date of this prospectus supplement no. 5 is September 14, 2010.

The section entitled "Selling Securityholders" in the prospectus is superseded in its entirety with the following:

### SELLING SECURITYHOLDERS

The 5.50% Exchangeable Senior Debentures due 2029, or the debentures, were originally issued by Digital Realty Trust, L.P., our operating partnership, and sold by the initial purchasers of the debentures in transactions exempt from the registration requirements of the Securities Act to persons reasonably believed by the initial purchasers to be qualified institutional buyers as defined by Rule 144A under the Securities Act. Under certain circumstances, we may issue shares of our common stock upon the exchange of the debentures. In such circumstances, the recipients of shares of our common stock, whom we refer to as the selling securityholders, may use this prospectus and any accompanying prospectus supplement to resell from time to time the shares of our common stock that we may issue to them upon the exchange of the debentures. Information about selling securityholders is set forth in this prospectus, and information about additional selling securityholders may be set forth in a prospectus supplement, in a post-effective amendment or in filings we make with the SEC under the Exchange Act that are incorporated by reference in this prospectus.

The following table sets forth information, as of September 14, 2010, with respect to the selling securityholders and the maximum number of shares of our common stock offered, or that could become beneficially owned, by each selling securityholder upon the exchange of the debentures. The information is based on information provided by or on behalf of the selling securityholders. The selling securityholders may offer all, some or none of the shares of our common stock which we may issue upon the exchange of the debentures. The maximum number of shares of our common stock offered, or issuable upon the exchange of the debentures, shown in the table below assumes exchange of the full amount of debentures held by each selling securityholder at the maximum exchange rate of 27.9096 shares of our common stock per \$1,000 principal amount of debentures and a cash payment in lieu of any fractional share. The exchange rate of the debentures is currently 23.5360 shares of our common stock per \$1,000 principal amount of debentures, but is subject to adjustment in certain events. Accordingly, the actual number of shares of our common stock offered, or issuable upon the exchange of the debentures, may increase or decrease from time to time. The percent of shares of common stock beneficially owned before and after resale is based on 88,706,014 shares of common stock outstanding as of September 7, 2010.

Name <sup>(1)</sup>	Common Stock Beneficially Owned before Resale <sup>(2)</sup>		Maximum Number of Shares of Common Stock Offered <sup>(3)</sup>	Common Stock Beneficially Owned after Resale <sup>(4)</sup>	
	Shares	Percent		Shares	Percent
Advent Convertible Arbitrage Master Fund <sup>(17)</sup>	82,137	*	82,137		
AGC <sup>(17)</sup>	100,446	*	100,446		
Alcon Laboratories <sup>(17)(18)</sup>	24,611	*	10,131	14,480	*
Allianz NACM Income and Growth Fund <sup>(5)</sup>	12,419	*	12,419		
AQR Absolute Return Master Account, L.P. <sup>(6)</sup>	181,412	*	181,412		
AQR DELTA Sapphire Fund, L.P. <sup>(25)</sup>	20,932	*	20,932		
AQR Diversified Arbitrage Fund <sup>(25)(26)</sup>	38,028	*	34,887	3,141	*
AVK (Advent Gaymore) <sup>(17)</sup>	142,338	*	142,338		
Black Diamond Offshore Ltd. <sup>(7)(8)</sup>	29,627	*	7,954	21,673	*
British Virgin Islands Social Security Board <sup>(17)(19)</sup>	9,242	*	4,437	4,805	*
CNH CA Master Account, L.P. <sup>(6)(9)</sup>	217,489	*	189,785	27,704	*
CNH Diversified Opportunities Fund <sup>(6)</sup>	13,954	*	13,954		
Columbia Convertible Securities Fund <sup>(10)</sup>	322,605	*	307,005	15,600	*
CSS, LLC <sup>(30)</sup>	69,774	*	69,774		
Domestic & Foreign Missionary Society <sup>(17)</sup>	2,204	*	2,204		
Double Black Diamond Offshore LDC <sup>(7)(11)</sup>	266,974	*	131,593	135,381	*
General Motors Mgmt Investment Co Trust <sup>(17)</sup>	75,244	*	75,244		
Grady Hospital <sup>(17)(20)</sup>	5,984	*	3,377	2,607	*
HFR CA Op. Master Trust Fund <sup>(17)</sup>	2,372	*	2,372		
Highbridge Convertible Opportunities Master Fund, L.P. <sup>(12)</sup>	71,169	*	71,169		

Name <sup>(1)</sup>	Common Stock Beneficially Owned before Resale <sup>(2)</sup>		Maximum Number of Shares of Common Stock Offered <sup>(3)</sup>	Common Stock Beneficially Owned after Resale <sup>(4)</sup>	
	Shares	Percent		Shares	Percent
Highbridge International LLC <sup>(12)(13)</sup>	1,554,142	1.72%	1,088,474	465,668	*
Hudson Bay Fund LP <sup>(31)</sup>	27,909	*	27,909		
Hudson Bay Master Fund Ltd. <sup>(31)</sup>	373,988	*	373,988		
Independence Blue Cross <sup>(17)(21)</sup>	33,040	*	18,811	14,229	*
Inflective Convertible Opportunity Fund I, L.P. <sup>(15)</sup>	139,548	*	139,548		
Inflective Convertible Opportunity Fund I, LTD <sup>(15)</sup>	432,598	*	432,598		
Institutional Benchmark Series <sup>(17)</sup>	7,591	*	7,591		
Institutional Benchmark Series Ivan Segregated Account <sup>(5)</sup>	41,864	*	41,864		
KBC Financial Products USA Inc. <sup>(14)</sup>	305,386	*	305,386		
Lyxor/Inflective Convertible Opportunity Fund <sup>(15)</sup>	167,457	*	167,457		
Morgan Stanley Convertible Securities Trust <sup>(27)</sup>	31,925	*	20,932	10,993	*
Nicholas-Applegate Convertible and Income Fund (CVT) <sup>(5)</sup>	233,463	*	233,463		
Nicholas-Applegate Convertible and Income Fund II (CVT) <sup>(5)</sup>	185,180	*	185,180		
Occidental Petroleum Corporation <sup>(17)(22)</sup>	17,774	*	8,540	9,234	*
Oregon Convertible Opportunities Bond Fund, L.P. <sup>(6)(16)</sup>	75,046	*	69,550	5,496	*
ProMutual <sup>(17)(23)</sup>	47,714	*	21,518	26,196	*
Royal Bank of Canada <sup>(29)</sup>	1,221,599	1.36%	97,683	1,123,916	1.25%
San Francisco City & County <sup>(17)</sup>	27,379	*	27,379		
Special Opportunities Offshore Fund Ltd. <sup>(6)</sup>	55,819	*	55,819		
Trustmark <sup>(17)(24)</sup>	17,896	*	8,819	9,077	*
Van Kampen Harbor Fund <sup>(28)</sup>	69,258	*	48,841	20,417	*

\* Less than one percent of the outstanding shares of common stock.

- (1) Additional selling securityholders not named in this prospectus will not be able to use this prospectus for resales until they are named in the selling securityholder table by a prospectus supplement or post-effective amendment.
- (2) Calculated based on Rule 13d-3(d)(1)(i) under the Exchange Act, except assumes that the debentures are exchanged at the maximum exchange rate of 27.9096 shares of our common stock per \$1,000 principal amount of the debentures. The actual number of shares of common stock beneficially owned before resale as of the date of this prospectus supplement is calculated based on the current exchange rate of 23.5360 shares of our common stock per \$1,000 principal amount of the debentures. The number of shares of common stock beneficially owned before resale also includes shares of common stock issuable upon exchange of our operating partnership's outstanding 4.125% Exchangeable Senior Debentures due 2026 and shares of our common stock issuable upon conversion of our outstanding 4.375% Series C Cumulative Convertible Preferred Stock and 5.500% Series D Cumulative Convertible Preferred Stock, in each case based on the exchange or conversion rates in effect as of September 14, 2010.
- (3) The maximum aggregate number of shares of common stock that may be sold under this prospectus will not exceed 7,435,118.
- (4) Assumes that each selling securityholder will sell the maximum number of shares of common stock for which the outstanding debentures held by such selling securityholder are exchangeable.
- (5) Nicholas-Applegate Capital Management LLC, or Nicholas-Applegate, is an investment adviser registered under the Investment Advisers Act of 1940. Nicholas-Applegate is an affiliate of Nicholas-Applegate Securities LLC, a limited purpose broker-dealer registered with the Financial Industry Regulatory Authority effective April 1993. Nicholas-Applegate Securities LLC was organized in December 1992 for the sole purpose of distributing mutual funds sponsored by Nicholas-Applegate. The selling securityholder has delegated full investment authority to Nicholas-Applegate, as investment adviser, over these securities, including full dispositive power. The Chief Investment Officer of Nicholas-Applegate is Horacio A. Valeiras, CFA, who, in such capacity, has oversight authority over all portfolio managers at Nicholas-Applegate. To the knowledge of Nicholas-Applegate, the securities listed herein were not acquired as compensation for employment, underwriting or any other services performed by the selling securityholder for the benefit of the issuer. The selling securityholder has certified that it purchased the securities being offered by it in the ordinary course of business, and at the time of the purchase of such securities, had no agreements or understandings, directly or indirectly, with any person to distribute such securities.
- (6) CNH Partners, LLC is the investment advisor of the selling securityholder and has sole voting and dispositive power over these securities. Investment principals for CNH Partners, LLC are Robert Krail, Mark Mitchell and Todd Pulvino.

- (7) Clint D. Carlson has the power to direct the voting and disposition of the securities held by Black Diamond Offshore Ltd. and Double Black Diamond Offshore LDC.
- (8) The shares of common stock beneficially owned by Black Diamond Offshore Ltd. include 21,673 shares of our common stock for which \$690,000 principal amount of 4.125% Exchangeable Senior Debentures due 2026 of Digital Realty Trust, L.P. held by Black Diamond Offshore Ltd. are exchangeable.
- (9) The shares of common stock beneficially owned by CNH CA Master Account, L.P. include 27,704 shares of our common stock for which \$882,000 principal amount of 4.125% Exchangeable Senior Debentures due 2026 of Digital Realty Trust, L.P. held by CNH CA Master Account, L.P. are exchangeable.
- (10) Yanfang (Emma) Yan, Director and Senior Equity Portfolio Manager, has the power to direct the voting and disposition of the securities held by Columbia Convertible Securities Fund.
- (11) The shares of common stock beneficially owned by Double Black Diamond Offshore LDC include 135,381 shares of our common stock for which \$4,310,000 principal amount of 4.125% Exchangeable Senior Debentures due 2026 of Digital Realty Trust, L.P. held by Double Black Diamond Offshore LDC are exchangeable.
- (12) Highbridge Capital Management, LLC is the trading manager of the selling securityholder and has the power to direct the voting and disposition of the securities held by the selling securityholder. Glenn Dubin and Henry Swieca control Highbridge Capital Management, LLC and have voting control and investment discretion over the securities held by the selling securityholder. Each of Highbridge Capital Management, LLC, Glenn Dubin and Henry Swieca disclaims beneficial ownership of the securities held by the selling securityholder.
- (13) The shares of common stock beneficially owned by Highbridge International LLC include 465,668 shares of our common stock for which \$14,825,000 principal amount of 4.125% Exchangeable Senior Debentures due 2026 of Digital Realty Trust, L.P. held by Highbridge International LLC are exchangeable.
- (14) The securities are under the total control of KBC Financial Products USA Inc. KBC Financial Products USA Inc. is a direct wholly-owned subsidiary of KBC Financial Holdings, Inc., which in turn is a direct wholly-owned subsidiary of KBC Bank N.V., which in turn is a direct wholly-owned subsidiary of KBC Group N.V., a publicly traded entity.
- (15) Thomas J. Ray, C.I.O. of Inflective Asset Management, LLC, has the power to direct the voting and disposition of the securities held by the selling securityholder.
- (16) The shares of common stock beneficially owned by Oregon Convertible Opportunities Bond Fund, L.P. include 5,496 shares of our common stock for which \$175,000 principal amount of 4.125% Exchangeable Senior Debentures due 2026 of Digital Realty Trust, L.P. held by Oregon Convertible Opportunities Bond Fund, L.P. are exchangeable.
- (17) Tracy V. Maitland, Chief Investment Officer and President of Advent Capital Management LLC, has the power to direct the voting and disposition of the securities held by the selling securityholder.
- (18) The shares of common stock beneficially owned by Alcon Laboratories include 14,480 shares of our common stock for which \$461,000 principal amount of 4.125% Exchangeable Senior Debentures due 2026 of Digital Realty Trust, L.P. held by Alcon Laboratories are exchangeable.
- (19) The shares of common stock beneficially owned by British Virgin Islands Social Security Board include 4,805 shares of our common stock for which \$153,000 principal amount of 4.125% Exchangeable Senior Debentures due 2026 of Digital Realty Trust, L.P. held by British Virgin Islands Social Security Board are exchangeable.
- (20) The shares of common stock beneficially owned by Grady Hospital include 2,607 shares of our common stock for which \$83,000 principal amount of 4.125% Exchangeable Senior Debentures due 2026 of Digital Realty Trust, L.P. held by Grady Hospital are exchangeable.
- (21) The shares of common stock beneficially owned by Independence Blue Cross include 14,229 shares of our common stock for which \$453,000 principal amount of 4.125% Exchangeable Senior Debentures due 2026 of Digital Realty Trust, L.P. held by Independence Blue Cross are exchangeable.
- (22) The shares of common stock beneficially owned by Occidental Petroleum Corporation include 9,234 shares of our common stock for which \$294,000 principal amount of 4.125% Exchangeable Senior Debentures due 2026 of Digital Realty Trust, L.P. held by Occidental Petroleum Corporation are exchangeable.
- (23) The shares of common stock beneficially owned by ProMutual include 26,196 shares of our common stock for which \$834,000 principal amount of 4.125% Exchangeable Senior Debentures due 2026 of Digital Realty Trust, L.P. held by ProMutual are exchangeable.
- (24) The shares of common stock beneficially owned by Trustmark include 9,077 shares of our common stock for which \$289,000 principal amount of 4.125% Exchangeable Senior Debentures due 2026 of Digital Realty Trust, L.P. held by Trustmark are exchangeable.

- (25) AQR Capital Management, LLC, a Delaware limited liability company and wholly-owned subsidiary of AQR Capital Management Holdings, LLC, a Delaware limited liability company, is the investment manager, or the Advisor, of the selling securityholder and has sole voting and dispositive power over the registrable securities held by such selling securityholder and exercises full discretionary control relating to all investment decisions made on behalf of the selling securityholder. Investment principals for the Advisor are Clifford S. Asness, Ph.D., David G. Kabiller, CFA, Robert J. Krail, John M. Liew, Ph.D., Brian K. Hurst, Jacques A. Friedman, Oktay Kurbanov, Ronen Israel, Lars Nielsen, Michael Mendelson, Stephen Mellas and Gregor Andrade, Ph.D.
- (26) The shares of common stock beneficially owned by AQR Diversified Arbitrage Fund include 3,141 shares of our common stock for which \$100,000 principal amount of 4.125% Exchangeable Senior Debentures due 2026 of Digital Realty Trust, L.P. held by AQR Diversified Arbitrage Fund are exchangeable.
- (27) Morgan Stanley Convertible Securities Trust is an investment company, subject to the Investment Company Act of 1940. The shares of common stock beneficially owned by Morgan Stanley Convertible Securities Trust include 10,993 shares of our common stock for which \$350,000 principal amount of 4.125% Exchangeable Senior Debentures due 2026 of Digital Realty Trust, L.P. held by Morgan Stanley Convertible Securities Trust are exchangeable.
- (28) Van Kampen Asset Management, as the selling securityholder's investment advisor, has discretionary authority to direct the voting and disposition of the securities held by Van Kampen Harbor Fund, an investment company, subject to the Investment Company Act of 1940. The shares of common stock beneficially owned by Van Kampen Harbor Fund include 20,417 shares of our common stock for which \$650,000 principal amount of 4.125% Exchangeable Senior Debentures due 2026 of Digital Realty Trust, L.P. held by Van Kampen Harbor Fund are exchangeable.
- (29) Royal Bank of Canada is an investment company, subject to the Investment Company Act of 1940. Royal Bank of Canada is an affiliate of RBC Capital Markets Corporation, a registered broker-dealer. Royal Bank of Canada has certified that it purchased the securities being offered by it in the ordinary course of business, and at the time of the purchase of such securities, had no agreements or understandings, directly or indirectly, with any person to distribute such securities.
- (30) CSS, LLC is a registered broker-dealer. CSS, LLC has certified that it purchased the securities being offered by it in the ordinary course of business as an investment, and that it is not, and does not intend to act as, an underwriter for the securities. Nicholas D. Schoewe and Clayton A. Struve share the power to direct the voting and disposition of the securities held by CSS, LLC.
- (31) Hudson Bay Capital Management, L.P., the investment manager of the selling securityholder, has voting and investment power over the securities held by the selling securityholder. Sander Gerber is the managing member of Hudson Bay Capital GP LLC, which is the general partner of Hudson Bay Capital Management, L.P. Sander Gerber disclaims beneficial ownership over the securities held by the selling securityholder.