PROSPECTS AND PROBLEMS ASSOCIATED WITH TECHNOLOGICAL CHANGE IN APPELLATE COURTS: ENVISIONING THE APPEAL OF THE FUTURE

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> Because things are the way they are, things will not stay the way they are.[1]

I. INTRODUCTION

The advancement of technology is notoriously difficult to predict with any precision. It is no small irony that science fiction authors have, in some real ways, driven the advancement of technology (and not the other way around).[2] In the legal world, the advancement of technology has had an enormous impact on the practice of law, how litigation works, and how trial and appellate courts operate. But there is comparatively little science fiction written about the advancement of technology in the courts, perhaps with good reason. Recognizing that void, this article envisions how technology will impact the appeal of the future.

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1. Magnuson & Kaphing, *supra* n. **, at 18 (quoting Bertolt Brecht).

2. *See e.g.* Lunaweb, *13 Sci-Fi Technologies that Became a Reality in 2013—Part 1*, http://interactiveexpedition.com/13-sci-fi-technologies-that-became-a-reality-in-2013-part-1/ (Nov. 1, 2013); Lunaweb, *13 Sci-Fi Technologies that Became a Reality in 2013—Part 2*, http://interactiveexpedition.com/13-sci-fi-technologies-that-became-a-reality-in-2013-part-2/ (Nov. 7, 2013) (both accessed Aug. 4, 2014; copies on file with Journal of Appellate Practice & Process).

This article begins with a discussion of the appellate process and technology in appellate courts today. The article then discusses the impact of technology in appellate courts, including some significant, but often-overlooked, changes that technology may have on appeals, including how video recording of trial court proceedings in the record on appeal can change how appeals are considered. The article follows with the case for additional use of technology in appellate courts, including some examples where technology can accomplish things that were impossible in the "paper world." The article concludes with some thoughts about the future of technology in appellate courts.

By definition, the future is uncertain and this article asks more questions than it answers. Along with creating previously unknown headaches and issues, advances in technology will afford appellate courts opportunities never possible in the paper world or with technology currently used on appeal. How these opportunities develop and what impact they have will turn on the capabilities of new technologies, the affordability and receptivity of new technologies, and the willingness of courts and lawyers to envision how things can be done better using technology (and not just how to replicate electronically what has been done for decades in the paper world).

II. THE APPELLATE PROCESS AND TECHNOLOGY IN APPELLATE COURTS TODAY

Historically, disappointed litigants in the United States have had the opportunity to seek appellate review by at least two courts: (1) an appeal to a state or federal appellate court and (2) a request for review by the United States Supreme Court. In the federal system, this two-step appellate process has been in place for decades. The same cannot be said for the state court systems.

Over the past sixty years, many states have added appellate review by an intermediate appellate court.[3] At present,

3. *See* Roger A. Hanson, *American State Appellate Court Technology Diffusion*, 7 J. App. Prac. & Process 259, 262 (2005) (characterizing development of "two-tiered systems of appellate review"—referring to state intermediate court of appeals and state supreme court—as "quite recent," and noting that "[a]s of 1957, only thirteen states had permanent intermediate appellate bodies").

approximately forty states have intermediate appellate courts.[4] In the states, there is more appellate process now than ever before.

Counting the United States Supreme Court, the federal courts of appeals, state supreme courts, and state intermediate appellate courts, there are more than 100 appellate court systems in the United States. Although each system has its own unique aspects, similarities in appellate processes abound. A common denominator is that each appellate court system involves judicial officers (typically in panels of three or more) reviewing what other judges have done. In doing so, these systems use technology in a variety of different ways.

Historically, use of technology in appellate courts ranged from none to some. Today, the extremes of technology use in appellate courts are (1) purely paper-based and (2) purely paperless. It is true that, since the advent of the electronic word-processor in the 1960s, no appellate system has been purely paper-based. With that caveat, however, some appellate courts are still largely paper-based, particularly in various state systems. "In the federal system," by contrast, "the paperless court is nearly here. With the maturation of the Public Access to Court Electronic Records (PACER) system, virtually every federal, district, appellate, bankruptcy and other specialty court filing may be electronically accessed by the public, the litigants, and the courts."[5]

A paperless appellate court implicates the use of technology in three components, only the first of which is particularly evident to the outside world: (1) electronic filing (the external component of technology in appellate courts); (2) electronic case management and processing (the internal, often staff-based or clerk-of-court-based component), and (3) electronic case analysis and resolution (the internal, judge-based

4. *Guide to State Politics and Policy* 266–67 (Richard G. Niemi & Joshua J. Dyck eds., CQ Press 2013).

5. Magnuson & Kaphing, *supra* n. **, at 19 (citations omitted) (noting, despite the persistence of paper-based processing in a number of state appellate courts, that "[s]tate courts are not far behind" the federal system).

component).[6] However, appellate courts differ dramatically in each of these components.

A. Electronic Filing

By late 2012, all federal courts of appeals were using electronic filing (e-filing).[7] State appellate courts, however, have been less universal in adopting e-filing. As of January 2010, only eleven states had implemented e-filing for appeals, although several other states had e-filing pilot programs or were considering e-filing for appeals.[8] And undoubtedly some states have adopted appellate e-filing since that date. It is telling, however, that at about the same time that all federal courts of appeals had adopted e-filing, the vast majority of state appellate court systems had not yet done so.

B. Electronic Case Management and Processing

Where do e-filings with appellate courts go? Into an electronic case-management and processing system, the second component of a paperless appellate court. "Case management is aimed at improving the primary processes of courts, which is processing filed cases to" final resolution.[9] Electronic case management and processing also involves a variety of other appellate functions. Along with managing appellate briefs, electronic case management and processing can involve electronic transmission of the record on appeal; electronic

6. There are, of course, numerous ways to describe this process. *See e.g.* Erwin J. Rooze, *Differentiated Use of Electronic Case Management Systems*, 3 Intl. J. for Ct. Admin. 51 (2010) (noting that case management involves "administrative management," "logistics management," "procedural management," and "content management," and that "[a] typical process in court consists of at least these generic subprocesses: (a) receive documents; (b) administrative preparation; (c) content preparation; (d) court decision-making; (e) content elaboration; (f) administrative completion; (g) send and archive") (footnote omitted)).

7. 5 David Boies & Stephen Zack, *Business and Commercial Litigation in Federal Courts* vol. 5, § 61:4 n. 2 (3d ed. ABA 2013).

8. David Schanker, *E-Filing in State Appellate Courts: An Appraisal*, http://www.appellatecourtclerks.org/publications-reports/docs/NCACC_E-Filing_White_Paper.pdf 6–8 (Natl. Conf. of App. Ct. Clerks Feb. 5, 2010) (accessed Aug. 4, 2014; copy on file with Journal of Appellate Practice and Process).

9. Rooze, *supra* n. 6, at 50.

distribution of orders, notices and minutes; and electronic payment of appellate filing fees.[10] Such technology use frequently decreases the time involved in perfecting the appellate record and resolving the appeal and decreases the costs for all involved.

C. Electronic Case Analysis and Resolution

Electronic case-management systems in trial courts are, in many respects, the next generation of judicial technology, designed to allow trial judges to prepare for and preside over hearings and then issue decisions in real time.[11] Both the requirements and the advantages of such a system are profound, particularly for high-volume trial courts in which a judicial officer may hear dozens of different cases each day. But for appellate courts, electronic case analysis and resolution have different functions and meet different needs. A primary need is ready access to the appellate briefs and filings as well as the trial court record. In addition, a helpful electronic case-analysis-and-resolution system will allow for word searching of documents, will link factual sources cited in briefs or draft decisions to source documents, and will link legal citations in briefs or draft decisions to the actual cases, statutes, or other authorities cited.

III. THE IMPACT OF TECHNOLOGY IN APPELLATE COURTS

Appellate court technology can have profound effects (both positive and negative) in a variety of different ways. An

10. Schanker, *supra* n. 8, at 13–14 (Wisconsin), 15–16 (Arizona); *see also* Philip G. Espinosa, *The Paperless Court of Appeals Comes of Age*, 15 J. App. Prac. & Process 99 (2014) (describing electronic case-management system used by Division Two of Arizona's Court of Appeals).

11. *See e.g.* Judicial Branch of Ariz., *Integrated Next Generation Case Management System*, http://www.ctc2013.com/Education-Program/Thursday-Sept-19/Morning/Session-7/~/media/Microsites/Files/CTC2013/Classes%20Round%202/Thurs_830_FIntegrated.ashx (describing system used by Arizona Superior Court, Maricopa County) (accessed Aug. 4, 2014; copy on file with Journal of Appellate Practice and Process); United States Courts, *Case Management/Electronic Case Files*, http://www.uscourts.gov/FederalCourts/CMECF.aspx (highlighting Case Management/Electronic Case Files system used in federal courts) (accessed Aug. 4, 2014; copy of main page on file with Journal of Appellate Practice and Process); Mentis Technology Solutions, *aiSmartBench*, *Introduction*, http://mentis technology.com/aismartbench.html (describing *aiSmartBench* product).

examination of cases discussing technology issues demonstrates some anticipated uses and consequences of technology, some unexpected uses and consequences, and some potentially troubling uses and consequences.

A. Processing Appeals

In the federal system, some cases reveal a novel use of electronic case-management systems that only technology would allow. For example, the Third Circuit addressed a request by a pro se litigant that his case be assigned to a different trial judge by noting that "the District Court's electronic case management system reflects that [the litigant] has initiated over two dozen suits in the past eight years, several of which were assigned to [the same judge]."[12] Although this is perhaps an unintended use of the electronic case-management system, other courts have made comparable use of such technology.[13]

Courts also have relied upon electronic case-management systems as evidence of receipt of a filing by all involved, even when the filing is not accompanied by a certificate of service.[14] One court even rejected a plaintiff's claim that she had not been served, noting plaintiff's statements in making the claim showed that she

12. *In re Johnson*, 531 F. Appx. 195, 195 (3d Cir. 2013).

13. *See e.g. Rasheed v. U.S.*, 2010 WL 235093, at *2 (E.D. Cal. Jan. 21, 2010) ("The Court has accessed its own electronic case management system and determined that Petitioner" had filed numerous other cases); *Dillard v. Servin*, 2012 WL 1937146, at *2 (D. Colo. May 29, 2012) ("The plaintiff, although proceeding pro se, is an experienced litigant. My review of the court's electronic case management data base shows that she has been a plaintiff in at least six cases in this court and a defendant in at least two cases."); *Lynn v. Roberts*, 2006 WL 2850273, at *4 (D. Kan. Oct. 4, 2006) ("Plaintiff's abusive litigation practices have not been limited to the federal courts. A review of the electronic case management system for the District of Kansas shows that this is one of 23 cases filed in this district in which plaintiff has appeared as a party or otherwise moved to intervene."); *Israfil v. Woods*, 2011 WL 8006371, at *4 n. 4 (S.D. Ohio Dec. 7, 2011) ("The electronic case management system of this Court reflects that Plaintiff has pursued a total of six civil rights complaints to date.").

14. *Stuart v. Steer*, 2011 WL 2492734, at *1 n. 3 (W.D. Okla. Mar. 2, 2011) ("Plaintiff's responsive pleadings do not contain a certificate of mailing, as required . . . . However, pleadings are posted upon receipt in the Court's electronic case management records. Hence, the undersigned assumes that Defendants, through their attorneys, have received the Notice of Electronic Filing generated by the Court's Electronic Case Filing System . . . and are aware of the filing of Plaintiff's responsive pleadings.") (citations omitted).

> would have had to access the court's electronic case filing and electronic case-management system to know that defendant filed a certificate of service with its motion and brief. Such access defeats any argument that plaintiff did not have access to the appropriate materials in order to formulate an appropriate response/brief in opposition.[15]

Particularly for questions of service, an electronic case-management system allows at least the appearance of precision about whether (and when) a party was served with a filing or order (or at very least when the party had access to such documents).[16]

B. Enhanced Transparency

For voluminous or otherwise complicated matters, use of the case-management system allows for added clarity in the record. For example, to avoid ambiguity, courts have cited page numbers "assigned by the court's electronic case management system and not those assigned by the parties."[17] Courts also have noted limitations of, and mistakes in, electronic case-management-system designations.[18] By contrast, another court

15. *Taylor v. Port Auth. of Allegheny Co.*, 2007 WL 218707, at *1 n. 1 (W.D. Pa. Jan. 25, 2007).

16. *Berberena-Garcia v. Aviles*, 258 F.R.D. 39, 41 (D.P.R. 2009) (noting that offer of judgment was served via court's electronic-filing system and finding, pursuant to local rule, that receipt of a notice of such filing generated by the court's electronic case-management system "'shall constitute the equivalent of service of the pleading or other paper on the person'") (citation omitted).

17. *Singh v. Lipworth*, 2012 WL 3862457, at *1 n. 1 (E.D. Cal. Sept. 5, 2012); *see also Bolton v. Smith*, 2012 WL 1400061, at *2 n. 1 (C.D. Cal. Mar. 1, 2012) (using similar convention where plaintiff did "not number the pages attached" to a filing); *Potts v. CitiFinancial, Inc.*, 863 F. Supp. 2d 1121, 1122 n. 1 (D. Colo. 2012) (using "docket number assigned to a specific paper by the court's electronic case management and filing system" throughout an order); *Bulris v. Kudrle*, 2010 WL 8386813, at *1 n. 2 (N.D.N.Y. Aug. 26, 2010) ("Because the complaint is very disorganized, the court will cite to the pages as assigned by the court's electronic case management system."). In another case, the court noted that documents were apparently erroneously "designated as pending motions in the court's electronic case management system." *U.S. v. Garcia-Delacruz*, 2011 WL 3665399, at *2 (D. Neb. Aug. 22, 2011).

18. *See e.g. Kovakas v. Kovakas*, 12 So. 3d 693, 696 (Ala. Civ. App. 2008) (noting that the "trial court rendered a judgment on December 16, 2005," which was not "entered into the electronic case-management system" until January 9, 2006); *Fellows v. Hartley*, 2010 WL 120873, at *1 (E.D. Cal. Jan. 7, 2010) (noting that petitioner's "lodged exhibits were not scanned, and therefore were not available to be viewed on the Court's electronic case management system by Respondent"); *Zhu v. Fed. Hous. Fin. Bd.*, 2007 WL 1267464, at

noted that it had "consult[ed] its own electronic Case Management docketing system," which showed prior litigation involving the same topic, adding that "[t]he record of a court's own proceedings is a source whose accuracy cannot reasonably be questioned."[19] Other courts have touched on the limitations of these electronic systems and expressed frustration, apparently developed through experience, caused by the transition to electronic case management: "[T]he court is sympathetic to the difficulties many attorneys and their staffs have encountered in the transition to the court's new electronic case management system."[20]

Such transparency also allows verification of avowals. One decision noted that the electronic filing system generated "a record of each access to an electronic case file," adding that those records indicated that filings were not timely made, which caused the court to "question[ ] whether the statement that 'efforts' were made to file a fees and costs application prior to the expiration of the deadline was factually correct."[21] A subsequent filing "reflecting access to the court's electronic case management system by petitioner's counsel" apparently confirmed that concern.[22] Another court noted that proposed findings of fact did not correctly reflect the date of an order,

*1 (D. Kan. May 1, 2007) (noting that complaint, file-stamped March 2, 2007, "was not docketed on the court's electronic case management system, however, until March 7, 2007"); *Gooch v. U.S.*, 2010 WL 5507043, at *1, n. 1 (W.D. Ky. Dec. 6, 2010) (noting that a "motion to reconsider later was docketed as a response . . . in the court's electronic case management system"); *Arnold v. Motley*, 2009 WL 3064879, at *1 n. 1 (W.D. Ky. Sept. 22, 2009) (noting that party filed response prior to court's order "but the response was not electronically scanned and entered into the Court's electronic case management system until" after the order "had been electronically entered"); *Katoch v. Mediq/PRN Life Support Servs., Inc.*, 2006 WL 516843, at *10 n. 10 (E.D. Mo. Mar. 2, 2006) (in addressing reference to "unspecified 'earlier documents,'" noting that "[a]ny earlier documents submitted for summary judgment were deleted from the Court's electronic case management system, therefore the Court does not have access to them").

19. *Lopez v. On Habeas Corpus*, 2010 WL 2991689, at *5 & n. 4 (E.D. Cal. July 29, 2010).

20. *Guerin v. Smart City Networks, Ltd. Partn.*, 2006 WL 5242380, at *3 (D. Nev. Oct. 13, 2006). The court continued, however, by noting that "the mistaken entry of an incorrect email address for plaintiff's counsel does not explain the considerable delay that occurred" regarding a motion. *Id.*

21. *Carrington ex rel. Carrington v. Secy., Dept. of Health & Human Servs.*, 2008 WL 2683632, at *1 (Fed. Cl. June 18, 2008).

22. *Id.* at *1.

citing to the electronic case-management system for the correct date.[23]

But the thought that technology in case-management systems is synonymous with transparency is not always true. In certain limited cases, courts have expunged or not included information that typically would appear on the court's electronic case-management system.[24] One court noted that a case had been designated "an electronic case," adding that "[c]ompliance with the electronic case management system is mandatory not voluntary."[25]

Public video access is another example of how technology can enhance transparency in appellate courts. Although examples abound, the Arizona Supreme Court has a free Internet-based streaming media program where virtually anyone, anywhere, can view live oral arguments.[26] The Arizona Supreme Court also has archived oral arguments going back to 2006, which again can be accessed on a free publicly available Internet-based system.[27] As another example, having made available audio recordings of oral arguments for years, Division One of the Arizona Court of Appeals recently began posting videos of oral arguments on You Tube.[28] Using technology to

23. *Epsolon Ltd. ex rel. Sligo (2000) Co. v. U.S.*, 78 Fed. Cl. 738, 746 n. 21 (Fed. Cl. 2007).

24. *U.S v. Ketner*, 566 F. Supp. 2d 568, 576 (W.D. Tex. 2008) ("Notice of Ketner's plea hearing did not appear on the Court's public calendar or the electronic case management system. The court closed the plea proceeding to the public" and sealed related documents).

25. *Landers v. U.S.*, 2006 WL 5668232, at *3 (Fed. Cl. May 3, 2006).

26. Arizona Judicial Branch, Azcourts.gov, *Arizona Supreme Court Streaming Media Archive*, http://www.azcourts.gov/AZSupremeCourt/LiveArchivedVideo.aspx (click a year to see case listings with links to oral arguments) (accessed Aug. 6, 2014; copy of main page on file with Journal of Appellate Practice & Process).

27. *Id.*

28. Arizona Court of Appeals, Division One, *Oral Arguments*, http://azcourts.gov/coa1/OralArguments.aspx (archiving four weeks of oral arguments; click "video" associated with a case number to see video of that argument) (accessed Aug. 6, 2014; copy of main page on file with Journal of Appellate Practice and Process); *see also e.g.* Florida First District Court of Appeal, *Online Video*, http://www.1dca.org/video.html (noting that Court "offers audio and video of oral arguments from January 2004 to the present," that "live video is streamed . . . when oral arguments are presented," and that "[a]rchives of oral arguments are generally made available within 24 hours of when the oral argument was held," and including a menu offering live video, archived video, and the oral-argument schedule) (accessed Aug. 6, 2014; copy on file with Journal of Appellate Practice and Process); Judicial Branch of Indiana, Courts.IN.gov, *Oral Arguments Online*, http://my

broaden the ability of the public to see what happens in an appellate courtroom is a paradigm of furthering transparency.

C. Consideration of the Record

In the paper world, the record was largely a collection of paper. The record consisted of pleadings and filings by the parties and others; the court's orders; documents and other exhibits admitted in evidence at trial (which could include things other than paper); and the court reporter's written transcripts of trial and hearings. At times, this record filled boxes or even rooms and was generally referred to as "the cold record" (or worse).

Technology is changing the nature and texture of the record. For example, using on appeal video recordings of trials (instead of a court reporter's written trial transcript as part of "the cold record") changes the complexion of the record. Among other things, use of a video recording instead of a written trial transcript can present witness credibility issues historically not addressed on appeal. Even grainy videos or audio recordings allow an appellate court to consider inflection, pauses, and tone, things never addressed by the appellate court in the paper world. As technology increases, facial expressions, ticks and even perspiration of witnesses, parties, counsel, and others will be available for review by appellate courts accepting video recordings instead of written trial transcripts. But is that what technology properly should be doing to appeals?

In this context, the issue is not new. As one commentator asked more than a dozen years ago: "Should appellate courts review trial court proceedings by viewing a video record?"[29] What happens "when a witness is presented to a jury by video recording? And what happens to the entire appeal process when digital media captures the trial record so that the appellate court

courts.in.gov/arguments (offering access to similar program for Indiana appellate courts) (accessed Aug. 6, 2014; copy of main page on file with Journal of Appellate Practice and Process); The Supreme Court of Ohio & The Ohio Judicial System, *Supreme Court Video*, http://www.sconet.state.oh.us/videostream/default.asp (same) (accessed Aug. 6, 2014; copy of main page on file with Journal of Appellate Practice & Process) (offering similar program for Ohio Supreme Court).

29. George Nicholson, *A Vision of the Future of Appellate Practice and Process*, 2 J. App. Prac. & Process 229, 248 (2000).

can see and hear everything that happened in the court below?"[30] Although some courts and commentators have discussed the issue, there is no real consensus regarding how such influences should be treated, meaning "[i]t is likely that in most instances, the appellate court treats the record as the record, and it is perhaps unknowingly influenced by the ability to see witnesses firsthand."[31]

It is clear that appellate courts are replaying recordings played for the jury at trial, for reasons that include assessing their possible impact on the jury. In one criminal appeal, the appellant argued that the trial court erred in admitting an audio recording "of poor quality," which caused the appellate court to listen to the recording and (in affirming) note:

> The audio recording, included in the record on appeal, is indeed of very poor quality. Voices of two women and at least one man, possibly two, are barely audible over the static associated with the equipment being hidden inside [a person's] clothing and the very loud barking of a dog throughout a great deal of the transaction. The quality is so poor, in fact, that we question its relevance as to the defendant's guilt.[32]

Other examples abound.[33] This approach clearly uses technology

30. Magnuson & Kaphing, *supra* n. **, at 22.

31. Magnuson & Kaphing, *supra* n. **, at 22 (citing Mary E. Adkins, *The Unblinking Eye Turns to Appellate Law: Cameras in Trial Courtrooms and their Effect on Appellate Law*, 15 J. Tech. L. & Policy 65 (2010); Bernadette Mary Donovan, *Deference in a Digital Age: The Video Record and Appellate Review*, 96 Va. L. Rev. 643 (2010); Robert C. Owen & Melissa Mather, *Thawing Out the "Cold Record": Some Thoughts on How Videotaped Records May Affect Traditional Standards of Deference on Direct and Collateral Review*, 2 J. App. Prac. & Process 411 (2000)).

32. *State v. Harris*, 2013 WL 1190826, at *5 (Tenn. Crim. App. Mar. 25, 2013).

33. *See e.g. People v. Meza*, 2011 WL 10136040, at *2, ¶ 12 (Ill. App. Aug. 11, 2011) ("On the video, although Aguilar's statements are barely audible, the detective's statements in response clearly imply that Aguilar implicated defendant as the shooter."); *Foley v. Haney*, 345 S.W.3d 861, 862 (Ky. App. 2011) ("The audiotape recording of [the] hearing is barely audible; however, based on what we can hear, the hearing officer reviewed medical records/reports related to the inmate's injuries and stated that he had a report based on confidential information."); *State v. Williams*, 2012 WL 4335435, at *7 (La. App. Sept. 21, 2012) ("Our review of the 911 recording reveals that Milliken was in a great deal of pain as he lay dying and had difficulty speaking. . . . Barely audible, Milliken says he was stabbed."); *cf. Scott v. Harris*, 550 U.S. 372, 378 (2007) (finding a defendant entitled to summary judgment in a case arising out of a car chase after considering "a videotape capturing the events in question" that "quite clearly contradicts the version of the story told by respondent and adopted by the Court of Appeals"). But dissenting in *Scott*, Justice

in a way that "the cold record" would not allow, and in doing so may enhance the administration of justice. But just because the technology is there, should it be used in that way? There may be no easy answer. What is clear is that

> [t]his manner of review alters the appellate process itself, making it possible to review matters currently beyond the scope of appellate review, such as the demeanor of a witness or the apparent bias of the trial judge, attorney, or juror betrayed by facial gestures or body language.[34]

D. Link Rot

"In 1995 the first Internet-based citation was used in a federal court opinion. In 1996, a state appellate court followed suit; one month later, a member of the United States Supreme Court cited to the Internet."[35] The frequency of citations to Internet sources in opinions has literally exploded since that time: "It is increasingly apparent that citing to Internet resources by courts has solidified and the practice is likely to increase with time."[36] On the day the decision is issued, the Internet citation will probably still be available and may be extremely helpful to the reader. But what about the efficacy of such links months, years, or even decades later? What happens, then, when the Internet site referenced in a decision is not maintained, resulting in "link rot," defined as "websites that have disappeared, been removed, been relocated, or been lost and are no longer accessible as originally posted?"[37]

Stevens noted that "[r]elying on a de novo review of a videotape, . . . buttressed by uninformed speculation about the possible consequences of discontinuing the chase, eight of the jurors on this Court reach a verdict that differs from the views of the judges on both the District Court and the Court of Appeals." *Id.* at 388 (Stevens, J., dissenting).

34. Nicholson, *supra* n. 29, at 248.

35. Arturo Torres, *Is Link Rot Destroying Stare Decisis As We Know It? The Internet-Citation Practice of the Texas Appellate Courts*, 13 J. App. Prac. & Process 269, 269 (2012) (citations omitted); *see also* L. Jay Jackson, *"Link Rot" Is Degrading Legal Research and Case Cites*, ABA J., http://www.abajournal.com/magazine/article/link_rot_is_degrading_legal_research_and_case_cites (Dec. 2013) (collecting authorities, and linking to Torres, *supra* this note) (accessed Aug. 12, 2014; copy on file with Journal of Appellate Practice and Process).

36. Torres, *supra* n. 35, at 271.

37. *Id.* at n. 19 (citations omitted).

The answer to this question is not easy. Link rot, however, promises to create real mischief in significant ways:

> The Internet-citation-practice studies highlight the permanent loss of legal authority due to the ephemeral nature of many of the Internet sites: Many sites are not timely maintained, or are abandoned, moved, or no longer available. Some commentators have alluded to the possibility that link rot is contributing to the slow erosion of one of common law's most fundamental principles—stare decisis. Can courts "let the decision stand" if the cited authority is no longer available or accessible? Or if accessible, the information on the site may not be identical to when it was originally cited by the court.[38]

It is unlikely that link rot will be the undoing of the common-law legal system. But it is a good, current example of how reliance on technology that then changes—and all technology inevitably changes—can cause substantial headaches in ways that are not always predictable.

E. The Lawyer's Ethical Duties[39]

Changes in technology impact a lawyer's duties and obligations, including a lawyer's ethical duties and obligations. In litigation, particularly where a client's electronically stored information is involved, lawyers "must take affirmative steps to monitor compliance [with litigation hold, production, and disclosure obligations] so that all sources of discoverable information are identified and searched."[40] The American Bar Association Commission on Ethics 20/20 notes that changes in technology permeate all of what it is to be a lawyer:

> Technology affects nearly every aspect of legal work, including how we store confidential information, communicate with clients, conduct discovery, engage in research, and market legal services. Even more fundamentally, technology has transformed the delivery of

38. *Id.* at 272 (footnotes and citations omitted).

39. For a more detailed discussion, see Magnuson & Kaphing, *supra* n. **, at 20–22.

40. *Zubulake v. UBS Warburg LLC*, 229 F.R.D. 422, 432 (S.D.N.Y. 2004); *see generally* Michael R. Arkfeld, *Arkfeld on Electronic Discovery and Evidence* (3d ed. LawPartner Pblg. LLC 2013).

> legal services by changing where and how those services are delivered (e.g., in an office, over the Internet or through virtual law offices), and it is having a related impact on the cost of, and the public's access to, these services.[41]

Given these changes, the ABA recently amended the Model Rules of Professional Conduct to account for technology's expanded and expanding role in the practice of law.

Model Rule 1.1 (Competence) now includes a comment noting that, "[t]o maintain the requisite knowledge and skill, a lawyer should keep abreast of changes in the law and its practice, including the benefits and risks associated with relevant technology."[42] Given that lawyers and clients use technology other than the telephone to communicate, a comment to Model Rule 1.4 (Communicating with Client) replaced "Client telephone calls should be promptly returned or acknowledged" with "A lawyer should promptly respond to or acknowledge client communications."[43] And although television previously was "one of the most powerful media for getting information to the public," given changes in technology, the new comment to Model Rule 7.2 (Advertising) states that "Television, the Internet, and other forms of electronic communications are now among the most powerful media for getting information to the public."[44] These changes make plain what has been true for years: Lawyers cannot ignore technology. Moreover, ignorance is no excuse for failing to comply with technological requirements of the courts.[45] A few particularly significant cases prove the point.

In one case, nearly a decade ago, a lawyer electronically filed with the court a declaration that included the "/s/"

41. ABA Commission on Ethics 20/20, *Introduction and Overview* 4, http://www.americanbar.org/content/dam/aba/administrative/ethics_2020/20120508_ethics_20_20_final_hod_introdution_and_overview_report.authcheckdam.pdf (Aug. 2012) (accessed Aug. 12, 2014; copy on file with Journal of Appellate Practice and Process).

42. ABA Commission on Ethics 20/20, et al., *Report to the House of Delegates* at 3, http://www.americanbar.org/content/dam/aba/administrative/ethics_2020/2012_hod_annual_meeting_105a_filed_may_2012.authcheckdam.pdf (Aug. 2012) (incorporating resolution intended to "provide guidance regarding lawyers' use of technology and confidentiality") (accessed Aug. 13, 2014; copy on file with Journal of Appellate Practice & Process).

43. *Id.* at 3–4.

44. *Id.* at 4.

45. Magnuson & Kaphing, *supra* n. **, at 19–20 (citing Samuel C. Stratton, *Changing Times Mean Changing Ethics Issues for Lawyers*, Leg. Intelligencer (May 9, 2012)).

indication that it had been signed.[46] The witness, however, had not signed the declaration, and subsequently refused to do so, meaning that the lawyer had no original signature.[47] Rather than immediately withdrawing the document, the lawyer tried repeatedly to get the witness to sign the declaration.[48] While these efforts were unfolding, the other side asked for a signed copy of the declaration, and only when the lawyer was unable to provide it did he tell the court and counsel of the mistake.[49] None too happy, the judge imposed personal sanctions on the lawyer of $50,000, and notified bar authorities and the local U.S. Attorney of his actions.[50] Fortunately for the lawyer, the appellate court vacated the sanctions and remanded for reconsideration.[51] Less fortunately, the district court imposed the same monetary sanction on remand.[52] In the paper world, much of this heartache would have been avoided, given that either the declaration would have been signed and filed or filed as unsigned. Technology allowed for the use of the "/s/" designation, which prompted this unfortunate and avoidable collateral litigation.

In another case, a lawyer filed a belated appeal, claiming that he had never received notice of the judgment, and was therefore entitled to relief. The lawyer, however, apparently had not updated his email address. Accordingly, the lawyer did not receive electronic notice of the filing of the decision disposing of the case. While the district court accepted his explanation, the court of appeals did not, and held that the district court abused its discretion in granting the extension of time to appeal.[53]

Courts are also expecting—and often requiring—lawyers to know how to use e-filing. The Oregon Court of Appeals recently considered an appeal from a judgment finding plaintiff's claim

46. *In re Baycol Prods. Litig.*, 2004 WL 1052968, at *9 (D. Minn. Apr. 12, 2004).

47. *Id.* at *10.

48. *Id.* at *16.

49. *Id.* at *6.

50. *Id.* at *19.

51. *See Plaintiffs' Baycol Steering Comm. v. Bayer Corp.*, 419 F.3d 794, 810 (8th Cir. 2005).

52. *In re Baycol Prods. Litig.*, 2005 WL 2464940, at *4 (D. Minn. Oct. 3, 2005).

53. *See In re World Com, Inc.*, 708 F.3d 327, 336 (2d Cir. 2013).

barred by claim preclusion given the result of a prior case.[54] The prior case had been dismissed "for plaintiff's negligent failure to comply with court orders and failure to prosecute."[55] Plaintiff's motion for relief from judgment in the prior case, which was denied, was based on a claim that prior counsel "did not comprehend the Court's electronic case management system and, therefore, did not access, open, and/or read and attend to notifications, orders, and other communications that the Court electronically issued."[56] Plaintiff was, however, able to argue successfully that the judgment in the prior case did not preclude plaintiff's claims in the subsequent case.[57]

Clearly, these cases may be outliers. But just as clearly, comparable cases exist. They serve as reminders that technology cannot be ignored without potentially dire consequences, substantively, ethically, and professionally.

F. The Judge's Ethical Duties[58]

Changes in technology also impact judicial ethical duties and obligations. As with court files generally, courts properly may take judicial notice of notations generated by the court's electronic case-management system.[59] Where technology can really create issues, however, is if a court seeks to independently take judicial notice of facts using technology or, more broadly, uses technology to independently investigate facts.

Rule 2.9(C) of the ABA's Model Code of Judicial Conduct states that "A judge shall not investigate facts in a matter independently, and shall consider only the evidence presented and any facts that may properly be judicially noticed."[60]

54. *Cornus Corp. v. Geac Enterprise Solutions, Inc.*, 289 P.3d 267, 269 (Or. App. 2012).

55. *Id.* at 269.

56. *Id.* at 270.

57. *Id.* at 276.

58. For a more detailed discussion, see Magnuson & Kaphing, *supra* n. **, at 20–21.

59. *Standard Ins. Co. v. Burch*, 540 F. Supp. 2d 98, 103 n. 4 (D.D.C. 2008) (explaining that "ECF Dkt. 1 & 4" citation in opinion is a "reference to this Court's electronic case management system, and the Court properly takes judicial notice of these filings by" a party); *accord Lopez*, 2010 WL 2991689, at *5 n. 4 (citing authority).

60. ABA Center for Professional Responsibility, *Model Code of Judicial Conduct* (ABA 2011). An electronic version of the Model Code is available at http://www.american

Comment 6 to this provision makes plain that this prohibition on independent factual investigation "extends to information available in all mediums, including "electronic" media[61] like the Internet. As one commentator has aptly noted:

> In appellate courts, the line between factual investigation and background reading seems to blur. Although there is no reason to think that the ABA Model Code of Judicial Conduct applies any differently to appellate judges than it does to trial judges, appellate courts routinely examine such extraneous material that has not been tested through cross-examination.
>
> To be sure, there is an important difference between a judge conducting her own research and the judge relying on material presented by one of the parties to an appeal (or an amicus). Still, it is interesting to consider the role of material presented on appeal that has not survived the crucible of cross-examination at trial.[62]

Stated more bluntly, "[i]n addition to violating . . . legal and ethical rules, ex parte sua sponte judicial research is simply un-American," given the adversary (rather than inquisitorial) nature of the legal system in the United States.[63] How, then, does this ethical prohibition peacefully co-exist with judicial

.bar.org/groups/professional_responsibility/publications/model_code_of_judicial_conduct.html (click on "Canon 2," then click on "Rule 2.9") (accessed Aug. 14, 2014; copy on file with Journal of Appellate Practice & Process).

61. *Id.* (click on "Canon 2," then click on "Rule 2.9," then click on "Comment").

62. Thomas E. Spahn, *The Legal Ethics of Email and Social Media: A Top Ten List* 173 (McGuireWoods, LLP 2013). An electronic version of this monograph is available at http://www.nasbonline.org/Council%20Of%20School%20Attorneys/docs/ethics.pdf (accessed Aug. 14, 2014; copy on file with Journal of Appellate Practice & Process); *see also* Nathaneal J. Mitchell, Student Author, *Judge 2.0: A New Approach to Judicial Ethics in the Age of Social Media*, 2012 Utah L. Rev. 2127.

63. Lee F. Peoples, *The Citation of Blogs in Judicial Opinions*, 13 Tul. J. Tech. & Intell. Prop. 39, 62 (2010); *see also* Lee F. Peoples, *The Citation of Wikipedia in Judicial Opinions*, 12 Yale J.L. & Tech. 1 (2009). Additional concerns expressed about judicial reliance on the Internet include questions of accuracy and authoritativeness, fairness, and a lack of permanency (including link rot). *See generally* David H. Tennant & Laurie M. Seal, *Judicial Ethics and The Internet: May Judges Search the Internet in Evaluating and Deciding a Case*? 16 Prof. Lawyer 2 (2005); *see also id.* at *16 ("The Association of the Bar of the City of New York Committee on Professional and Judicial Ethics and Committee on Government Ethics jointly responded positively to [the recommendation to modify Rule 2.9(C)]: 'Because facts obtained on the Internet and in other electronic media are often incomplete or incorrect, we support this important principle.'") (footnote and citation omitted).

notice of "adjudicative fact[s]," which the Federal Rules of Evidence say a court may take "on its own" and "at any stage of the proceeding?"[64] A fair answer is "it's unclear."[65]

The answer is unclear, in part, because it is unclear what the Model Code prohibits. Nearly a decade ago, commentators noted that the then-proposed revision to Model Code Rule 2.9(C)

> leaves some ambiguity as to whether judges are completely prohibited from searching the Internet. For example, may judges still use the Internet to find background information for an opinion? Is the factual information fair game so long as it is not applied directly to resolving the factual dispute at hand? Should there be some allowance for references to governmental Web sites? Also, the Model Code does not distinguish between trial and appellate judges. Appellate courts traditionally enjoy greater leeway in the breadth of their considerations because they must set precedent for future decisions and often make policy determinations. Are they restricted to the same extent as trial courts? Further revisions and debate may be needed to clarify the matter.[66]

In the decade since, there have been no further revisions to the relevant section of the Model Code, but there has been substantial debate by commentators.[67]

64. *See* Fed. R. Evid. 201(a), (c)(1), (d).

65. *See* Bryan H. Babb & Kellie M. Barr, *Developments in Indiana Appellate Procedure: Rule Amendments, Notable Case Law, and Tips for Appellate Practitioners*, 42 Ind. L. Rev. 813, 833 (2009) ("It certainly will be interesting to monitor how courts reconcile the accessibility of independent electronic research with the new judicial notice provisions [of the state code of judicial conduct] in future decisions.").

66. Tennant & Seal, *supra* n. 63, at 16.

67. *See e.g.* Ellie Margolis, *It's Time to Embrace the New—Untangling the Uses of Electronic Sources in Legal Writing*, 23 Alb. L.J. Sci. & Tech 191, 204 (2013) (discussing judicial notice of Internet materials generally, adding that "[j]udicial notice of online materials at the appellate level raises additional concerns"); Jeffrey C. Dobbins, *New Evidence on Appeal*, 96 Minn. L. Rev. 2016, 2058 n. 215 (2012) (noting that neither Rule 2.9(c) nor its comments "define[s] 'facts in a matter'"); Mitchell, *supra* n. 62, at 2144 n. 125 (noting that the comment to Rule 2.9(c) "was added in 2007, . . . before the risks of social media use became readily apparent"); Elizabeth G. Thornburg, *The Lure of the Internet and the Limits on Judicial Fact Research*, 38 Litig. 41, 43 (Summer/Fall 2012) ("By including the reference to judicial notice, . . . the Model Code makes the prohibition in [Rule 2.9(c)] both more limited and more complex."). The ABA has in the past decade issued one opinion addressing judicial use of electronic social media, but this is of course a topic somewhat different from taking judicial notice of information posted on the Internet. *See* ABA Committee on Ethics & Professional Responsibility, *Formal Opinion 13-462:*

What help, then, do the applicable rules provide in addressing judicial notice? Part of the path through this thicket is the requirement that a party always, after making a timely request, "is entitled to be heard on the propriety of taking judicial notice and the nature of the fact to be noticed."[68] The ethical prohibition of using the Internet for factual research, by contrast, is not such a clear guide. For example, is using the Internet to determine whether a case is pending before another court "factual research"? Does it matter if the other court is in the same jurisdiction or judicial system?[69]

In making decisions, judges may (and, in fact, perhaps out of necessity must) rely on their own knowledge and experience where appropriate.[70] That said, the limits of appropriate reliance on knowledge, experience, and the scope of appropriate judicial notice become unclear. For example, over time, court decisions have caused one commentator to state "[m]ost courts are willing to take judicial notice of geographical facts and distances from private commercial websites such as MapQuest, Google Maps, and Google Earth."[71] Indeed, courts have used such Internet sources to estimate distance and the time required to drive

Judge's Use of Electronic Social Networking Media 1 (Feb. 21, 2013) ("A judge may participate in electronic social networking, but as with all social relationships and contacts, a judge must comply with relevant provisions of the Code of Judicial Conduct and avoid any conduct that would undermine the judge's independence, integrity, or impartiality, or create an appearance of impropriety.") (footnote omitted).

68. Fed. R. Evid. 201(e).

69. The answer, by the way, is apparently not. *See e.g. Cervantes v. Chavez*, 2013 WL 5487029, at *1 n. 1 (C.D. Cal. Sept. 27, 2013) ("The Court takes judicial notice of Internet records relating to this action in the state appellate courts.") (citation omitted); *Herrera v. Davis*, 2013 WL 3789654, at *1 n. 1 (C.D. Cal. July 19, 2013) ("The Court takes judicial notice of Internet records relating to this action in the Riverside Superior Court, and in the state appellate courts.") (citation omitted); *Rios v. Trombley*, 2013 WL 5516191, at * 1 n. 1 (E.D. Mich. Oct. 4, 2013) ("A federal district court is thus permitted to take judicial notice of another court's website."); *see also e.g. Graham v. Smith*, 292 F. Supp. 2d 153, 155 n. 2 (D. Me. 2003) (referring to Pacer); *Fed. Natl. Mortg. Assn. v. Soll*, 2011 WL 2519218, at *2 (Minn. App. June 27, 2011) ("Here, appellants filed a separate action in district court in which they alleged defects in the foreclosure process. Review of the district court's electronic case management system shows that, on May 9, 2011, the district court dismissed that action without prejudice.").

70. *Cf. Ashcroft v. Iqbal*, 556 U.S. 662, 679 (2009) (noting that deciding whether complaint states a plausible cause of action is "context-specific, requiring the reviewing court to draw on its experience and common sense").

71. David J. Dansky, *The Google Knows Many Things: Judicial Notice in the Internet Era*, 39 Colo. Law. 19, 24 (2010).

various distances.[72] In a recent case arising out of a political demonstration, the Tenth Circuit provided a descriptive explanation of a comparatively restrained use of such judicial notice:

> An appendix to our opinion contains a helpful map of the site. The parties unfortunately did not provide us a map. However, based on the undisputed location of the President's visit, "[w]e take judicial notice of a Google map and satellite image as a 'source[] whose accuracy cannot reasonably be questioned'" for purposes of this case. . . . We do this here only to determine the "general location" of relevant events. . . . The map in the appendix identifies the approximate location of the southern checkpoint—150 yards south of the mayor's driveway—based on Google Maps's "Distance Measurement Tool."[73]

Not all requests for such judicial notice have been granted. In a remand from the California Supreme Court, the California Court of Appeal denied without comment a party's request to "take judicial notice of Internet materials consisting of articles from law firm websites and blogs hailing" the California Supreme Court's decision "as a change in the evidentiary standard."[74]

As another example, government publications available on the Internet can cause unique issues. In conjunction with authorizing and regulating judicial notice, the Federal Rules of Evidence list a wide variety of "self-authenticating" items, including "[a] book, pamphlet, or other publication purporting to be issued by a public authority."[75] Accordingly, for a decade

72. *Carson v. Adams*, 2013 WL 169845, at *2 n. 3 (C.D. Cal. Jan. 14, 2013) (citing Google Maps for the distance between locations) (citing cases); *Miller v. Bennett*, 2013 WL 5450311, at *9 n. 5 (D. Colo. Aug. 12, 2013) ("A search on Mapquest.com reveals that a roundtrip by automobile from Hanna, Wyoming to Selby, South Dakota would cover 1177.87 miles and require nearly 20 hours to complete."); *U.S. v. Brown*, 636 F. Supp. 2d 1116, 1124 n. 1 (D. Nev. 2009) (similar) (citing cases); *Ceglia v. Zuckerberg*, 2013 WL 1208558, at *22 n. 25 (W.D.N.Y. Mar. 26, 2013) (citing an earlier case in which the court referred to an "Internet mapping service," and taking judicial notice of the fact that "the distance between Wellsville, New York, and Boston, Massachusetts, is in excess of 400 miles, requiring a significant amount of time to traverse, whether by overland transportation or by air") (citations omitted).

73. *Pahls v. Thomas*, 718 F.3d 1210, 1216 n. 1 (10th Cir. 2013) (citations omitted).

74. *Sargon Enterprises, Inc. v. Univ. of S. Cal.*, 156 Cal. Rptr. 3d 372, 377 n. 4 (App. 2013).

75. Fed. R. Evid. 902(5).

(and without citing authority for authenticity or foundation), courts have found that "[p]ublic records and government documents, including those available from reliable sources on the Internet, are subject to judicial notice."[76]

The changing nature of media has not escaped judicial notice. "Printed material purporting to be a newspaper or periodical" (i.e., newspapers and magazines) are self-authenticating under the Federal Rules of Evidence.[77] And the Rules also state that "a reference to any kind of written material or any other medium includes electronically stored information."[78] Perhaps as a result, one court felt empowered to take judicial notice of Internet articles, albeit without citing the rules of evidence and, in doing so, being careful to note that judicial notice is not being taken of the truth of the matter asserted in such articles.[79]

Clearly, there is a rich, well-reasoned vein of literature suggesting great judicial restraint, for ethical and other reasons, when using technology to fill in factual gaps.[80] Appellate courts should think long and hard before they venture into the ether-

76. *Rios v. Trombley*, 2013 WL 5516191, at * 1 n. 1 (E.D. Mich. Oct. 4, 2013) (citing *U.S. ex. rel. Dingle v. BioPort Corp.*, 270 F. Supp. 2d 968, 972 (W.D. Mich. 2003)); *accord Eidson v. Medtronic, Inc.*, 981 F. Supp.2d 868, 879 (N.D. Cal. 2013) (finding that "because all of the documents at issue appear on the FDA's public website, they may be judicially noticed"); *Wood v. Wells Fargo Bank, N.A.*, 2013 WL 5763101, at *5 (D. Colo. Oct. 23, 2013) (acknowledging Internet-source rule, but declining to take judicial notice of guide on county assessor's website because the events at issue occurred before it was published); *Bray v. Warden*, 2012 WL 6568382, at *3 (S.D. Ohio Dec. 17, 2012).

77. Fed. R. Evid. 902(6).

78. Fed. R. Evid. 101(b)(6).

79. *Ford v. Artiga*, 2013 WL 3941335, at *7 n. 5 (E.D. Cal. July 30, 2013) ("The court takes judicial notice of the publication of these [newspaper and Internet] articles, but not of the truth of their content. *Von Saher v. Norton Simon Museum of Art*, 592 F.3d 954, 960 (9th Cir. 2009).") (additional citation omitted).

80. *See* Magnuson & Kaphing, *supra* n. **, at 21–22 (citing Allison Orr Larsen, *Confronting Supreme Court Fact Finding*, 98 Va. L. Rev. 1255 (2012); Thornburg, *supra* n. 67; Joel Cohen & Katherine A. Helm, *When Judges Google*, http://www.law.com/jsp/article.jsp?id=1202457543196&src=EMC-Email&et=editorial&bu=Law.com&pt=LAWCOM%20Newswire&cn=NW_20100503&kw=When%20Judges%20Google&slreturn=20130615071932 (Law.com May 3, 2010) (accessed Aug. 11, 2014; copy on file with Journal of Appellate Practice and Process); Elizabeth G. Thornburg, *The Curious Appellate Judge: Ethical Limits on Independent Research*, 28 Rev. Litig. 131 (2008); Edward K. Cheng, *Independent Judicial Research in the* Daubert *Age*, 56 Duke L.J. 1263 (2007); Tennant & Seal, *supra* n. 63; Coleen M. Barger, *On the Internet, Nobody Knows You are a Judge: Appellate Courts' Use of Internet Materials*, 4 J. App. Prac. & Process 417 (2002)).

sphere. That said, cases to date suggest that lawyers need to be prepared to account for just such exploration outside the record.

IV. THE CASE FOR ADDITIONAL USE OF TECHNOLOGY IN APPELLATE COURTS

In the future, there will be more technology in appellate courts. That not-so-bold prediction is based on the many advantages of using technology in appellate courts. As noted nearly a decade ago (pre-history in the world of technology):

> The courts, like the rest of us, are moving slowly into the information age. The advantages of computerization and electronic case management to the courts are obvious and myriad. Electronic case files require very little storage space and no physical exertion to create, store, locate, deliver, and retrieve from various court officers. They can be copied or transmitted at the touch of a button. They can be indexed and searched easily and quickly. Specific information can be easily extracted, organized and analyzed. In a well-designed and implemented case-management system, the files can almost never be lost, damaged, unlawfully altered, or stolen. Computer-based information and communications technologies promise to speed the administration of justice and dramatically reduce costs.[81]

These reasons largely remain valid today, yet the adoption (and hence future) of technology in appellate courts (particularly in state appellate courts) is choppy and driven by a variety of factors. The most urgent factor driving adoption of technology in appellate courts is survival.[82] Inadequate judicial funding "has risen to epidemic proportions. . . . Simply stated, there are not enough bodies in the court system to efficiently and effectively process the volume of cases courts are expected to manage."[83] As noted in a 2012 survey by the National Center for State

81. Kenneth J. Withers, *Electronic Court Records: Public Access and New Attorney Responsibilities*, For Def. 49–50 (June 2004).

82. For a more detailed discussion, see Magnuson & Kaphing, *supra* n. **, at 18–19.

83. *Id.* at 18 (citing Herbert B. Dixon Jr., *The Real Danger of Inadequate Court Funding*, 51 Judges J. 1 (2012) & Peter T. Grossi, Jr., et al., *Crisis in the Courts: Reconnaissance and Recommendations*, in *Future Trends in State Courts* 83 (Natl. Ctr. for State Courts 2012)).

Courts:

- Seventeen state court systems reduced hours of operations;
- Seventeen delayed filling judicial vacancies;
- Nineteen laid off employees;
- Twenty-eight held administrative and clerical positions open; and
- Thirty-one delayed filling vacancies in support positions.[84]

The survey added that "[s]eventy percent of the state court administrators report that they expect their budget situation to stay relatively the same over the next three years. Eleven percent expect their budget situation to get worse."[85] The survey concluded that courts are turning to advanced technology in an attempt to increase efficiency in the courts.[86] Simply put, "[t]he pressure on courts to adopt technological advances, especially as a means to counterbalance budgetary shortfalls, is enormous."[87] A close look at a single jurisdiction helps to prove the point.

The Minnesota Judicial Branch is adopting and using technology to compensate for a lack of personnel. The multi-year initiative calls for all case types to be e-filed or submitted on paper and converted to electronic files; for justice system partners and other external constituents to have secure access to electronic records; for court processes to be streamlined; and for

84. *Id.* (citing National Center for State Courts, *The 2012 Budget Survey of State Court Administrators* 3 (2012) [hereinafter "*2012 Budget Survey*"]).

85. *2012 Budget Survey* , *supra* n. 84, at 2.

86. Magnuson & Kaphing, *supra* n. **, at 18 (citing *2012 Budget Survey*, *supra* n. 84, at 3).

87. Chris Crawford, *Emerging Technology Trends that Will Transform Courts* 19 (Natl. Ctr. for St. Cts. 2011), http://ncsc.contentdm.oclc.org/cdm/singleitem/collection/tech/id/770/rec/6 (pointing out in addition that "technology serves as a very effective enabler of meaningful change if it is coupled with a serious internal examination of court service delivery and a thoughtful effort to reengineer court processes") (accessed Aug. 18, 2014; copy on file with Journal of Appellate Practice & Process).

judges and court staff to rely on electronic records.[88] Recognizing that Minnesota law-enforcement officers issue one million citations for traffic and other violations each year, an electronic filing project allows officers statewide to file citations electronically, "speeding citation processing and reducing paperwork on both ends of the transaction."[89] Other changes in Minnesota include expanded sharing of case information with justice system partners (by the end of 2012, the Minnesota Judicial Branch was generating 1.4 million data exchanges per month with government agencies); a new system for sharing orders for protection with law enforcement agencies;[90] and improved collections through centralization and automation of the work of collecting overdue fines and fees.[91] Self-represented litigants can get assistance through e-mail and a virtual Self-Help Center on the Minnesota Judicial Branch website.[92]

Other examples abound. Appellate courts have used electronic mail internally for years, saving postage and mailing cost, increasing efficiency, and allowing for nearly instantaneous exchange of information, drafts, edits, and revisions. Appellate courts are now using technology to deliver decisions, saving postage and mailing costs, increasing efficiency, and making the communication of decisions nearly instantaneous.[93] Travel costs and delay can be reduced significantly by allowing oral argument using videoconferencing

88. Minnesota Judicial Branch, eCourtMN, *Vision, Goals, Benefits, and Technologies—Vision*, http://www.mncourts.gov/?page=4635 (accessed Aug. 18, 2014; copy on file with Journal of Appellate Practice & Process).

89. Minnesota Judicial Branch, *Report to the Community*, http://www.mncourts.gov/Documents/0/Public/Court_Information_Office/MJB_Report_to_the_Community_2012_PDF.pdf at 9 (accessed Aug. 18, 2014; copy on file with Journal of Appellate Practice & Process).

90. *Id.* at 2 (letter from the Chief Justice).

91. *Id.* at 7 (pointing out that these changes resulted in the collection of more than $20 million in overdue debt in 2012, a 200-percent increase from just three years earlier).

92. Minnesota Judicial Branch, Self-Help Center, *Representing Yourself in Court*, http://www.mncourts.gov/selfhelp/ (offering information about many areas of law and common court actions, and including a "Questions" button that takes the user to a contact-us page) (accessed Aug. 18, 2014; copy on file with Journal of Appellate Practice & Process).

93. *Courts of Appeals Use E-Technology to Deliver Opinions*, 41 Third Branch 2, 2 (Apr. 2009). An electronic copy of this article is available at http://www.uscourts.gov/News/TheThirdBranch/TTBViewer.aspx?doc=/uscourts/News/TTB/archive/2009-04%20Apr.pdf?page=2.

technology,[94] while videoconferencing and online training also can be used for various other court-related purposes.[95] Appellate courts are adopting technology at an increasing rate.[96] Court technology is so pervasive there is a generally available Court Technology Bulletin[97] and an annual Court Technology Conference.[98] And of course there are numerous studies, white papers, and related materials discussing the advantages of, and lessons learned about, using technology in the courts.[99]

> The fact is that technology allows the courts, as it does most other businesses, to leverage their most expensive asset—people—to manage the never-ending caseload demands. Despite the significant investment required on the front end, technology saves money in the long run. As the saying goes, however, there is no free lunch, and technology impacts both the process and the quality of justice.[100]

94. *See e.g.* Edward Toussaint, *Minnesota Court of Appeals Hears Oral Argument via Interactive Conferencing Technology*, 2 J. App. Prac. & Process 395 (2000).

95. United States Courts, *The Third Branch, Get Your COAT On!* http://www.uscourts.gov/news/TheThirdBranch/11-08-01/Get_Your_COAT_On.aspx (Aug. 2011) (discussing Chambers Online Automation Training program) (accessed Aug. 21, 2014; copy on file with Journal of Appellate Practice & Process).

96. The Fifth Circuit, for example, recently adopted new briefing rules that standardize the format of citations to the record so its judges can use a software program developed by the court itself to instantly access electronic copies of the underlying documents. *See* United States Court of Appeals for the Fifth Circuit, Circuit News, *Citations to Records on Appeal in the Fifth Circuit*, http://www.ca5.uscourts.gov/news/news/ROA%20News.pdf (accessed Aug. 18, 2014; copy on file with Journal of Appellate Practice & Process); *see also* Jess Davis, *5th Circuit's E-Briefing Innovation Prompts Rule Change*, Law 360, http://www.law360.com/legalindustry/articles/492518/fifth-circuit-s-e-briefing-innovation-prompts-rule-change (Dec. 2, 2013) (registration required).

97. National Center for State Courts, *Court Technology Bulletin*, http://courttechbulletin.blogspot.com (accessed Aug. 18, 2014; copy of main page on file with Journal of Appellate Practice & Process).

98. *See e.g.* National Center for State Courts, *CTC 2013*, http://www.ctc2013.com (recapping 2013 Court Technology Conference and indicating that next Conference was scheduled for December 2014) (accessed Aug. 18, 2014; copy of main page on file with Journal of Appellate Practice & Process).

99. *See e.g.* National Center for State Courts, Technology in the Courts, *Resource Guide*, http://www.ncsc.org/Topics/Technology/Technology-in-the-Courts/Resource-Guide.aspx (accessed Aug. 18, 2014; copy of main page on file with Journal of Appellate Practice & Process).

100. Magnuson & Kaphing, *supra* n. **, at 19.

V. THE FUTURE OF TECHNOLOGY IN APPELLATE COURTS

What, then, is the future of technology in appellate courts? One obvious but not particularly helpful answer is that there will be more technology in appellate courts in the future. But what?

Clearly, courts will never have the resources to be at the cutting edge of technology. Instead, courts will look to the market for ways to enhance their ability to use technology, for ways in which to increase efficiency and reap the resulting savings, and for ways of exploiting technology to do things that simply could not be done in the paper world. But by definition, courts' necessarily limited financial resources will limit the specific types of technology adopted in appellate courts in the future.

With that substantial caveat, extrapolating from appellate courts' current use of technology provides some glimpse into the future. Just as the telephone, and then the facsimile, revolutionized appellate courts in their day, so too will electronic case filing, case management and processing, and case analysis and resolution. E-filing allows briefs to include links to legal authority and record citations that can be opened with the click of a mouse. Done correctly, these links will be preserved indefinitely so that they can be used by the court at any stage of processing and deciding the appeal. Such links can be an enormous help to the court, particularly in complicated cases with substantial histories and large records in which there may be hundreds or thousands of trial-court docket entries.[101]

The ability to do word searches of the record helps in the drafting and decisionmaking process. Effectively, such technology would turn the entire record on appeal (or portions of it, such as trial testimony and exhibits) into a database in which various searches can be performed. The technology, in some form, exists now. It is not, however, always used in appellate courts and, when it is, may involve personnel time and attendant costs. In the future, it will be automatic and pervasive.

101. All judges know that there is nothing quite like looking at the exact language used in a case, exhibit, or testimony, rather than reading even a close paraphrase. But done incorrectly, links to documents in the record are an annoyance and do not help. Technology and training advancements will allow more effective use of such links.

Technology changes in appellate courts will need to account for litigants who have unequal resources, including pro se litigants. For example, courts that currently require e-filing may have exceptions for self-represented parties who do not have access to computers or other technology. Even as technology advances, it will still need to accommodate outliers like the hand-written brief (and whatever its analogue will be in the future).

Technology will allow appellate courts to shrink geographic gulfs. Appellate courts are already using videoconferencing to discuss cases and meet as a court, recognizing that appellate judges on the same bench sometimes live and chamber hundreds of miles from each other.[102] Such technology will be better in the future and clunky, jerky video will continue to be replaced with clear, smooth images. There is no reason why such technology will not be used more broadly to enable both lawyers and judges who are located far from the courthouse in which arguments are scheduled to participate in oral argument remotely.

Historically, the physical courthouse has been a symbol of authority that, according to one description, "must express solemnity, stability, integrity, rigor, and fairness."[103] But those symbols of authority are expensive. As appellate courts expand to account for increased volume, the future may use technology to allow for smaller and more decentralized physical plants. It likely will be technology, not bricks and mortar, that will help courts to do more with less in the future.

VI. CONCLUSION

The first sentence of this article bears repeating: The advancement of technology is notoriously difficult to predict

102. *See e.g.* Ruggero J. Aldisert, *A Nonagenarian Discusses Life as a Senior Circuit Judge*, 14 J. App. Prac. & Process 183, 194 (2013) (referring to a "permanent state-of-the-art audio-visual system" in the judge's chambers on the West Coast "that cost the government less than one round-trip airfare, lodging, and meals for a one-week sitting" with the judge's home court on the East Coast).

103. Gerald Thacker, *Federal Courthouse*, in National Institute of Building Sciences, *WBDG–Whole Building Design Guide*, http://www.wbdg.org/design/federal_courthouse.php (Apr. 21, 2011) (accessed Aug. 18, 2014; copy on file with Journal of Appellate Practice & Process).

with any precision. And perhaps there will be some science fiction written about the advancement of technology in the appellate courts that gives us additional insight. Until that happens, however, it is safe to say that advances in technology will afford appellate courts opportunities never known or possible in the paper world, and will probably do so in ways that may not be very predictable. These advances in technology are, however, likely to impact the appellate process in ways that will enhance efficiency, that will require change, and that will come with many benefits (and some burdens) when compared to current technology. Clearly, things will not stay the way they are.